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Bibliography on Grey Literature on Air Quality Modeling, Part II New Modeling Techniques

NATO Committee on the Challenges of Modern Society, Brussels (Belgium)

Oct 78

PB 289501

AIR POLLUTION

ASSESSMENT METHODOLOGY and MODELING

Number 103

Bibliography of Air Pollution Literature on Atmospheric Modeling

Part II

New Modeling Techniques

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NORTH ATLANTIC TREATY ORGANIZATION

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A worldwide cooperation in the field of modeling activities has proved the necessity to review the state of the art of air quality modeling and to show international trends in model standardization. An important point to fulfill the task was the registration and documentation of all those papers and reports which have not yet been published in generally available journals. Therefore, the Modeling Panel decided to prepare a Technical Document of this so-call "Grey Literature" which has been separated into two parts: (1) Bibliography of Grey Literature on Air Quality Modeling (especially GAUSSian Plume Models) and (2) Bibliography of Grey Literature on Air Quality Modeling (New Models). In this document the actual version of the part concerning the new models is presented.

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Bibliography on Grey Literature on Air Quality Modeling, Part II (New Modeling Techniques)

A Report of the NATO/CCMS Pilot Study on Air Pollution Assessment Methodology and Modeling

COMMITTEE ON THE CHALLENGES OF MODERN SOCIETY

NORTH ATLANTIC TREATY ORGANIZATION

October 1978

Preface

The North Atlantic Treaty Organization (NATO) established the "Committee on the Challenges of Modern Society" (CCMS) at the November 1969 meeting of the North Atlantic Council.

The CCMS was charged with developing meaningful environmental and social programs that complement other international programs, and with showing leadership, first, in solution of existing problems and, second, in development of long-range goals for environmental protection in the NATO sphere of influence and in other countries as well. A first Pilot Study on Air Pollution was initiated by the CCMS at its inaugural meeting in December 1969. The United States (Environmental Protection Agency) has been the pilot nation with the Federal Republic of Germany (Federal Ministry of the Interior) and Turkey (Scientific and Technical Research Council) as copilot-nations.

The Pilot Study on Air Pollution was an action program designed to demonstrate and encourage the utilization of existing knowledge for the development of air quality management programs. It entailed the demonstration of a system approach to air quality management. Case studies have been carried out in Ankara, Turkey; Frankfurt, Federal Republic of Germany; St. Louis, U. S.; Oslo, Norway; South Holland Region, The Netherlands (NATO/CCMS Report No. 6, Appendices A - E).

The results of the pilot study are documented in NATO/CCMS Report No. 6 (Revised) "Guidelines to Assessment of Air Quality" of October 1972 and in NATO/CCMS Report No. 33 (Final Report) containing 15 recommendations as well as in several other documents, listed as Annex II to this document.

Starting from three of the above recommendations (VI, VII and XIV) the Federal Republic of Germany proposed to initiate a new Pilot Study on Air Pollution Assessment Methodology and Modeling at the CCMS Plenary Session on October 22 and 23, 1974.

These NATO/CCMS Recommendations are:

RECOMMENDATION IV

Member nations will co-operate to develop standardized methods for emissions data storage and retrieval to support requirements in the conduct of national air quality management programs. The US National Emission Data System (NEDS) might serve as a model for a common international system.

RECOMMENDATION VII

Member nations will co-operate to develop standardized techniques for projecting emissions and predicting future ambient air quality.

RECOMMENDATION XIV

Member nations agree the CCMS modeling activity has shown that there is a widespread need for further international co-operation to accomplish the following tasks:

Bring together model developers and air quality managers for exchange of ideas, discussion of users' needs and demonstration of modeling techniques.

Standardize modeling techniques for specific air quality management applications and consider how computerized models might be made available for all users.

Continue to review on-going air quality assessment studies.

In spring 1975 the North Atlantic Council approved the German proposal. The pilot study work started with the Federal Republic of Germany (Federal Ministry of the Interior) as pilot nation and the United States of America (Environmental Protection Agency) and Belgium (Service du Premier Ministre) as co-pilot nations:
A Working Group and two Panels were established with the following functions:

Assessment Methodology Panel

- Pursue and carry out Recommendations VI and VII
- Continue to review present and future assessment studies with respect to the application of assessment methodology.

Modeling Panel

- Develop standardized models for various air quality management applications.
- Develop programs to improve modeler/user communications in conjunction with the Assessment Methodology Panel and the Working Group.
- Continue as an information forum on new modeling concepts and techniques, organizing once a year international technical meetings on air pollution modeling and its application.

In addition the Working Group established an Ad-Hoc Group on Air Quality Management Systems to revise and update the NATO/CCMS Report No. 6 (Revised) 1972 by preparing a new document on "Guidelines to Air Quality Management Systems".

Another Ad-Hoc Group was set up for compiling a Glossary of Terms frequently used in assessment methodology, modeling and air quality management systems.

As an outcome of this Pilot Study on Air Pollution Assessment Methodology and Modeling the following NATO/CCMS documents are published (see also Annex III):

Air Quality Management System

- Guidelines to Air Quality Management System.

Assessment Methodology

- Air Pollution Emission Inventory Systems
- Air Pollution Emissions Projecting

Air Pollution Modeling

- Introduction to Air Quality Modeling
- Uses and Needs for Air Quality Modeling
- Bibliography on Grey Literature on Air Quality Modeling, Part I (Applied Models)
- Bibliography on Grey Literature on Air Quality Modeling, Part II (New Modeling Techniques)
- Practical Demonstration of Multiple Source Urban Air Quality Modeling (Gaussian Plume)
- Fundamentals for the Applications of a Gaussian Plume Model

Other Publications

- Glossary of Terms
- Proceedings of the 6th International Technical Meeting on Air Pollution Modeling and its Application (24. - 26. September 1975, Frankfurt/Main, Germany)
- Proceedings of the 7th International Technical Meeting on Air Pollution Modeling and its Application (7. - 10. September 1976, Airlie House, USA)
- Proceedings of the 8th International Technical Meeting on Air Pollution Modeling and its Application (20. - 23. September 1977, Louvain-la-Neuve, Belgium).

The chairman of the Working Group wishes to acknowledge the scientists participating from pilot, copilot, and observer countries, and the many other persons, who assisted in the preparation of this document.

The panel, which performed diligently throughout the course of this effort, receives the highest praise. The panel members were:

Federal Republic of Germany - Pilot Country

H. Bartels
A. Braig
J. Frank
B. Gutsche
D. Jost
W. Klug
L. Kropp
E. Lahmann
V. Vent-Schmidt

Belgium - Copilot Country

A. Berger

United States of America - Copilot Country

K. L. Calder
L. E. Niemeyer
H. Slater
J. Tikvart

Canada - Observers

M. Kwizak
H. E. Turner

France - Observer

J. C. Oppenau
B. Reilhac

Italy - Observer

E. Runca
L. Santomauro

Norway - Observer

B. Sivertsen

The Netherlands - Oberserver

F. Nieuwstadt
T. Schneider

United Kingdom - Observer

A. Keddie
M. L. Williams

The addresses of the panel members are listed in Annex I.

Full recognition is given to each panel member for carrying out and coordinating review and other activities related to the development of this document in his respective country and to Ms. C. Morawa of the Federal Environmental Office, Germany for her effort in coordinating and organising and for editorial work.

For the Working Group,
Erich Weber, Chairman.

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Annex III NATO/CCMS Documents on the Pilot Study on Air Pollution Assessment Methodology and Modeling	

Introduction

Since the publication of the recommendations as mentioned in the preface especially recommendation XIV a world-wide cooperation in the field of modeling activities has proved the necessity to review the state of the art of air quality modeling and to show international trends in model standardization.

An important point to fulfil the first task seems to be the registration and documentation of all those papers and reports which have not yet been published in generally available journals.

Therefore, the Modeling Panel decided to prepare a Technical Document of this so-called "Grey Literature" and started questionnaire actions. After some initial difficulties the response was so impressive, that the Modeling Panel in its 4th Meeting, September 13 - 15, 1976 decided to split this document into two parts:

(1) Bibliography of Grey Literature on Air Quality Modeling (especially GAUSSian Plume Models),

(2) Bibliography of Grey Literature on Air Quality Modeling (New Models)

In this document the actual version of the part concerning the new models is presented.

The first part dealing with applied models was already published as NATO/CCMS document No. 70 (Oct. 1977).

During the spring 1978 meeting of the Modeling Panel it was recommended that in case of amended versions of the bibliography of grey literature only comprehensive documents including all data sheets contained in earlier documents shall be published.

Idea, advantages and limits of structuring with descriptors

The user of this compilation of grey literature on diffusion modeling shall be informed about aims, methods and results of a paper by being given a short summary added into the report data sheet.

The structuring of the grey literature is done using a limited number of descriptors. The intention is to find - possibly with the aid of data processing methods - the relevant publications dealing with defined subjects of interest. The key shall firstly be the list of all possible descriptors.

The descriptors corresponding to a report cannot replace the function of an abstract, however. This compilation shall be extendable. Therefore, the list of descriptors may be expanded or a descriptor may be subdivided, if necessary. Because of the finite descriptor system it is not narrow enough to allow for a certain type of summary reviewing contents or approaches described in the publication.

This lack of information is to be seen - especially in the present case - under the aspect of determining the corresponding descriptors from the abstracts or summaries without knowledge of the publications themselves. The summaries of a lot of papers of the present grey literature had to be recognised as insufficient. The further discussion shall allow, firstly, some corrections of the existing report data sheets and, secondly a more descriptive abstract for further publications to be prepared for the grey literature survey.

Present status of the descriptors' list

The presently available list of descriptors is given as appendix. A hierarchical compilation proved to be very useful. Descriptors were defined for 12 main groups of subjects, for subgroups, and for the subjects themselves. This hierarchy is represented by a decade classification using five figures - a preceding "0" is not printed in the entries - as illustrated by the following example (e.g. entry no. 720007):

DESCRIPTORS

1007 MODEL TYPE
1015 GAUSSIAN MODEL
2038 NITROGEN OXIDES
4073 FUNDAMENTAL (RESEARCH, DEVELOPMENT)
8125 LINE SOURCE
10014 VALIDATION

- 1 — figure for check purposes only,
- 0 — figure marking a special descriptor not to be subdivided further,
- 1 — figure indicating a subgroup+), even in those cases where a more detailled description is to be expected,
- 0 — figure concerning the main groups.

It is to be seen that a further step of this compilation procedure can serve to complete the descriptors' list within the main groups or subgroups. For instance there is a possibility to define which kinds of advantages are to be named within the descriptor "1110 - advantages".

Marking a publication with a main group (e.g. 0100 - model type) or a subgroup descriptor (e.g. 1110 - advantages) means that a paper deals with the problem defined by the descriptor without referring to the contents of the information. It may also be a marking for data processing purposes, only.

+) with the exception of descriptor "0210 - Inert Gases"

If, for instance, publications on new models shall be marked with more definite descriptors the papers with a descriptor "0100 - model type" have to be looked for, only.

Disposition of the descriptors

The descriptors are given following the criteria:

a) Does the paper survey a special result of a subject represented by a descriptor, e.g. determination of diffusion parameters, turbulence classes or plume rise?

b) Does the paper contain aspects on dispersion as e.g. wash out, chemical changes.

Asking like a) means contributions "determination of ...", asking like b) means "with consideration of ..."?

The disposition of descriptors within this compilation was performed on the basis of the available abstracts insofar as the subjects were mentioned explicitely or were to be expected being dealt with in the paper. Trivial conclusions were not considered: in general it was not necessary to mark a descriptor "0822 - stationary source" in addition to "0302 - urban" except the paper dealt with special aspects following criteria a) or b).

A special remark seems necessary for the group "0400 - application". The majority of papers can be described as "0407 - fundamental (research and development)" even those dealing with the application of results within "0401 - licensing procedure",

"0402 - stack height determination" or anything else. Some other publications, however, may discuss possibilities and methods applicable for licensing procedures in general. In these cases the application is of larger importance than research and development and the description "0401 - licensing procedure" seems to be justified.

The disposition "1001 - validation" or "1002 - calibration" was performed without an absolute necessity for the authors of the paper having accomplished own measurements and experiments. A comparison of results with measurements or experiments cited in the paper was sufficient.

0100 Model Type	0200 Compounds	0300 Scale	0400 Application	0500 Parameters, Model Characteristics	0600 Transformation and Removal Processes
0101 Gaussian	0201 Sulfur Dioxide	0301 Local	0401 Licensing Procedure	0501 Dispersion Parameters	0610 Chemical Transformations
0102 Box	0202 Carbon Monoxide	0302 Urban			
0103 Grid	0203 Nitrogen Oxides	0303 Regional	0402 Stack Height Determination	0502 Turbulence Classes	0620 Physical Transformations
0104 Lagrangian	0204 Organic Gases	0304 Long Distance	0403 Cause Analysis	0503 Plume Rise	0621 Sedimentation Fall Out
	0205 Fluor Compounds		0404 Scheduling of Measurements	0504 Topography	
0105 Analytical	0206 Particles			0505 Roughness of Ground	0622 Wash Out
0106 Statistical	0207 Oxidants		0405 In Addition to Measurements		0623 Adsorption
0110 Other	0208 Water Vapour			0506 Low Wind Speed	0624 Radioactive Decay
	0209 Radioactive Compounds		0406 Epidemiologics		
	0210 Inert Gases		0407 Fundamental (Research, Devel.)	0507 Mixing Height/Inversion ~	0630 Phase Transitions
	0211 Heavy Gases		0408 Urban and Regional Planning		
			0409 Suppl. Control	0510 (to be defined)	

0700 Sensitivity Analysis	0800 Model Input	0900 Model Output	1000 Field Experiments	1100 Qualifications	1200 Documentation
0710 Occasional Variation of Parameters	0810 Source Dimension	0910 Short Term	1001 Validation	1110 Advantages	1201 Program Descriptio
0720 Systematical Variation of Parameters	0811 Point Source	0911 Mean Values	1002 Calibration	1120 Limits of Applicability	1202 Program Listing
	0812 Line Source	0912 Max. Values	1003 Parameter Determination		
	0813 Area Source	0913 Real Time	1004 Others		
	0814 Volume Source	0920 Long Term			
	0820 Source Type	0921 Concentration Field			
	0821 Mobile Source	0922 Frequency Distributions			
	0822 Stationary Source	0923 Characteristic Values			
	0830 Source Time Dependence				
	0831 Discontinuous Source				
	0832 Contin. Source				
	0840 Meteorological Statistics				
	0841 1-dimensional				
	0842 2-dimensional				
	0843 3-dimensional				
	0850 Wind Variance				
	0851 with Height				
	0852 with Distance				

ENTRY NO. 000001

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INSTITUTION
LAWRENCE LIVERMORE LABORATORY
P.O. BOX 808 LIVERMORE, CA 94550 USA

TITLE OF PAPER
ADPIC - A 3-DIMENS. TRANSPORT-DIFFUSION MODEL FOR THE DISPERSION OF ATMOSPH. POLLUTANTS & ITS VALIDATION AGAINST REGIONAL TRACER STUDIES

LANGUAGE ENGLISH

REPORT NO. UCRL 76170, REV. 1 NO. OF PAGES 016 DATE OF PUBLICATION 01- -

NUMBER OF AUTHORS 1 R. LANGE

DESCRIPTORS

1007 MODEL TYPE
3034 REGIONAL
4073 FUNDAMENTAL (RESEARCH, DEVELOPMENT)
8117 POINT SOURCE
8311 DISCONTINUOUS SOURCE
8508 WIND VARIANCE IN SPACE
10014 VALIDATION
11100 ADVANTAGES
5010 DISPERSION PARAMETERS

REMARKS/ABSTRACT
HYBRID LAGRANGIAN-EULERIAN ATMOSPHERIC TRANSPORT-DIFFUSION MODEL DEVELOPED AND VALIDATED TO CALCULATE 3-DIMENSIONAL DISTRIBUTION OF ATMOSPHERIC POLLUTANTS IN TRANSIENT REGIONAL FLOW FIELDS. THIS CODE, ADPIC, VALIDATED AGAINST ANALYTICAL SOLUTIONS INCLUDING PUFF RELEASE IN STEADY UNIDIRECTIONAL SHEAR FLOW OR WITH SCALE DEPENDENT HORIZONTAL AND VERTICAL EDDY DIFFUSION COEFFICIENTS. WITHIN 5% REPRODUCED.

ENTRY NO. 000002

AVAILABLE FROM
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ISTITUTO RICERCHE 'G. DONEGANI' SOCIETA MONTEDISON
I-NOVARA (ITALY)

TITLE OF PAPER
FURTHER DEVELOPMENTS IN THE APPLICATION OF SHIR'S MODEL TO THE VENICE AREA

LANGUAGE ENGLISH

REPORT NO. NO. OF PAGES DATE OF PUBLICATION 01- -

NUMBER OF AUTHORS 3 G. MARZIANO A. SUTERA

DESCRIPTORS

1007 MODEL TYPE
2011 SULFUR DIOXIDE
3026 URBAN
10014 VALIDATION

REMARKS/ABSTRACT
APPLICATION OF SHIR'S DIFFUSION MODEL PRESENTED. MODEL USED TO SIMULATE SO2-POLLUTION AROUND VENICE. TWO DIFFERENT PERIODS OF THE YEAR ARE SIMULATED TO CHARACTERIZE THE EFFECT OF DIFFERENT METEOROLOGICAL SITUATIONS ON SO2-CONCENTRATIONS. A STATISTICAL ANALYSIS IS MADE ON THE COMPUTED RESULTS WITH EXPERIMENTAL DATA OBTAINED FROM STATIONS PLACED IN THE AREA.

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NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION AIR RESOURCES ATMOSPHERIC TURBULENCE AND DIFFUSION LAB. OAK RIDGE, TENNESSEE 37830

TITLE OF PAPER
TURBULENCE AND DIFFUSION IN THE ATMOSPHERIC BOUNDARY LAYER OVER URBAN AREAS

LANGUAGE ENGLISH

REPORT NO. ATDL-CONTRIB-34 NO. OF PAGES 082 DATE OF PUBLICATION 70- -

NUMBER OF AUTHORS 1 S. HANNA

DESCRIPTORS

1007 MODEL TYPE
3026 URBAN

REMARKS/ABSTRACT
THE BASIC CONCEPTS OF AIR POLLUTION METEOROLOGY ARE SUMMARIZED AND THESE ARE APPLIED TO THE ESTIMATION OF WINDS, TURBULENCE, AND DISPERSION OVER URBAN AREAS.

ENTRY NO. 700006

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INSTITUTION
STANFORD RESEARCH INSTITUTE
MENLO PARK, CA. 04025 USA

TITLE OF PAPER
A PRACTICAL, MULTIPURPOSE URBAN DIFFUSION MODEL FOR CARBON MONOXIDE

LANGUAGE ENGLISH

REPORT NO. PB-196 003 (R.A.NO) NO. OF PAGES 184 DATE OF PUBLICATION 70-09-

NUMBER OF AUTHORS 4 P. LUDWIG A. MOON

DESCRIPTORS

1007 MODEL TYPE
2020 CARBON MONOXIDE
3026 URBAN
4073 FUNDAMENTAL (RESEARCH, DEVELOPMENT)
5029 TURBULENCE CLASSES
5070 MIXING HEIGHT / INVERSION HEIGHT
8435 3-DIMENSIONAL METEOROLOGICAL STATISTICS
9105 SHORT TERM
9229 FREQUENCY DISTRIBUTIONS
10014 VALIDATION

REMARKS/ABSTRACT
DEVELOPMENT AND STATUS OF A RECEPTOR-ORIENTED DIFFUSION MODEL APPLICABLE TO URBAN AREAS TO GIVE: CO-CONCENTRATION ISOPLETHS FOR GIVEN METEOROLOGICAL CONDITIONS AND TIMES OF DAY. SEQUENCES OF HOURLY CO-CONCENTRATIONS AT SPECIFIC LOCATIONS FOR GIVEN SEQUENCES OF METEOROLOGICAL CONDITIONS, CLIMATOLOGICAL SUMMARIES OF CO-CONCENTRATIONS IF METEOROLOGICAL STATISTICS AVAILABLE. EMPIRICAL CORRECTIONS OF MODEL.

17

ENTRY NO. 700008

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INSTITUTION
CENTER FOR ENVIRONMENTAL STUDIES ARGONNE NATIONAL LABORATORY
9700 SOUTH CASS AVENUE ARGONNE, ILLINOIS 60439 USA

TITLE OF PAPER
CHICAGO AIR POLLUTION SYSTEMS ANALYSIS PROGRAM 'A MULTIPLE-SOURCE URBAN ATMOSPHERIC DISPERSION MODEL'

LANGUAGE ENGLISH

REPORT NO. ANL/ES-CC-007 NO. OF PAGES 147 DATE OF PUBLICATION 70-05-

NUMBER OF AUTHORS 5 J. ROBERTS E. CROKE

DESCRIPTORS

1007 MODEL TYPE
2011 SULFUR DIOXIDE
3026 URBAN
4073 FUNDAMENTAL (RESEARCH, DEVELOPMENT)
5029 TURBULENCE CLASSES
5070 MIXING HEIGHT / INVERSION HEIGHT
8133 AREA SOURCE
8141 VOLUME SOURCE
9105 SHORT TERM

REMARKS/ABSTRACT

MULTIPLE-SOURCE, URBAN ATMOS. DISPERSION MODEL DEVELOPED DESCRIBING TRANSIENTS (MORNING TRANSITIONS IN ATMOS. STABILITY & MIXING LAYER HEIGHT). VALIDATION BY COMPARISON WITH OVER 10000 HOURLY AVERAGES OF SO2 MONITORED BY DEP. ENVIR. CONTROL OF CITY OF CHICAGO. MODEL'S CAPABILITY TO DESCRIBE AREA SOURCES AS VOLUMETRIC POLLUTANT CLOUDS. DETAILS OF TRANSPORT THEORY, COMPUTERIZED ALGORITHMS, STAT. RESULTS.

ENTRY NO. 700009

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INSTITUTION
SYSTEM DEVELEPMENT CORPORATION
2500 COLORADO AVENUE SANTA MONICA, CA. 90406 USA

TITLE OF PAPER
COMPREHENSIVE TECHNICAL REPORT ON ALL ATMOSPHERIC CONTAMINANTS ASSOCIATED WITH PHOTOCHEMICAL AIR POLLUTION

LANGUAGE ENGLISH

REPORT NO. EPA/650/4-75-002 NO. OF PAGES DATE OF PUBLICATION 70-06-

NUMBER OF AUTHORS 4 L. WAYNE R. BRYAN

DESCRIPTORS

1007 MODEL TYPE
2070 OXIDANTS
3034 REGIONAL
4073 FUNDAMENTAL (RESEARCH, DEVELOPMENT)
10014 VALIDATION
10022 CALIBRATION

REMARKS/ABSTRACT
LITERATURE REFLECTION ON ORIGIN & EFFECTS OF PHOTOCHEM. SMOG. ANALYSES OF INTERRELATIONSHIPS OF CONTAMINANT, ENVIRONMENTAL AND SOURCE FACTORS TO GENERALIZE PRINCIPLES & TECHNIQUES DEVELOPED FIRST IN LOS ANGELES FOR APPLICATION TO OTHER REGIONS OF U.S.A. ILLUSTRATIVE APPLICATIONS OF TECHNIQUES TO APPRAISE AIR QUALITY & PREDICT TRENDS. MULTIVARIATE STAT. ANALYSIS OF RECORDS & COMPUTED AIR QUALITY DATA.

ENTRY NO. 710002

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U.S. EPA METEOR. LAB. RESEARCH TRIANGLE PARK, N.C. 27711 USA

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CENTER FOR ENVIRONMENTAL STUDIES ARGONNE NATIONAL LABORATORY
9700 SOUTH CASS AVENUE ARGONNE, ILLINOIS 60439 USA

TITLE OF PAPER
CHICAGO AIR POLLUTION SYSTEMS ANALYSIS PROGRAM
[FINAL REPORT[

LANGUAGE ENGLISH

REPORT NO. ANL/ES-CC-009 NO. OF PAGES 393 DATE OF PUBLICATION 71-02-

NUMBER OF AUTHORS 2 E. CROKE J. ROBERTS

DESCRIPTORS

1007 MODEL TYPE
3026 URBAN
4073 FUNDAMENTAL (RESEARCH, DEVELOPMENT)
10014 VALIDATION
11100 ADVANTAGES

REMARKS/ABSTRACT

HOW INTEGRATED PLANNING EFFORT CAN BRING TOGETHER DATA BASE FOR AN URBAN AREA, ESTABLISH SYSTEM FOR DATA MANAGEMENT, AND PRODUCE AIR POLLUTION CONTROL STRATEGIES AS RESULT. ATMOSPHERIC D. /ERSION MODEL DEVELOPED AND APPLIED TO CHICAGO URBAN AREA. STATISTICAL AND EXPERIMENTAL TESTS FOR MODEL. SHORT-TERM STRATEGIES FOR CONTROL OF AIR POLLUTION EPISODES, LONG-RANGE PLANNING FOR AIR POLLUTION ABATEMENT.

ENTRY NO. 710003

AVAILABLE FROM
SEE INSTITUTION

INSTITUTION
NORWEGIAN INSTITUTE FOR AIR RESEARCH
BOX 115 N-2007 KJELLER

TITLE OF PAPER
A TIME DEPENDENT NUMERICAL DISPERSION MODEL FOR AIR POLLUTION, WITH APPLICATION TO THE CITY OF OSLO

LANGUAGE ENGLISH

REPORT NO. OR 20/71 NO. OF PAGES 015 DATE OF PUBLICATION 71- -

NUMBER OF AUTHORS 1 K. GRONSKEI

DESCRIPTORS

1007 MODEL TYPE
3026 URBAN
5070 MIXING HEIGHT / INVERSION HEIGHT
10014 VALIDATION

REMARKS/ABSTRACT
FIRST DRAFT OF A MODEL IN AN EARLY DEVELOPMENT STAGE
THE VERTICALLY INTEGRATED CONTINUITY EQUATION IS SOLVED NUMERICALLY TO CALCULATE AIR POLLUTION CONCENTRATION OVER AN URBAN AREA. CALCULATED AND MEASURED VALUES ARE COMPARED DURING AN INVERSION SITUATION IN OSLO.

ENTRY NO. 710010

AVAILABLE FROM
U.S. EPA METEOR. LAB. RESEARCH TRIANGLE PARK, N.C. 27711 USA

INSTITUTION
THE CENTER FOR THE ENVIRONMENT AND MAN, INC.
275 WINDSOR STREET HARTFORD, CONNECTICUT 06103 USA

TITLE OF PAPER
PREDICTION BY NUMERICAL MODELS OF TRANSPORT AND DIFFUSION IN AN URBAN BOUNDARY LAYER

LANGUAGE ENGLISH

REPORT NO. 4082 NO. OF PAGES 139 DATE OF PUBLICATION 71-07-

NUMBER OF AUTHORS 3 J. PANDOLFO M. ATWATER

DESCRIPTORS

1007 MODEL TYPE
3026 URBAN
4073 FUNDAMENTAL (RESEARCH, DEVELOPMENT)

REMARKS/ABSTRACT
3-DIMENSIONAL NUMERICAL MODEL BASED ON EULERIAN CONSERVATION EQS. OF MOMENTUM, HEAT, WATER VAPOR, SALINITY USED TO EXAMINE TRANSPORT AND DIFFUSION PROCESSES IN PLANETARY BOUNDARY LAYER. HORIZONT. DIFFUSION INCORPORATED THROUGH STRONGLY AND IMPLICITLY DIFFUSIVE FINITE-DIFFERENCE SCHEME FOR HORIZONT. ADVECTION TERMS,VIZ. UPWIND DIFFERENCING. OTHER PROCESSES EXPLICITLY INCLUDED IN THE DIFFERENTIAL EQUATIONS.

ENTRY NO. 710012

AVAILABLE FROM
NAT. AIR POLL. CONTROL ADMIN U.S. ENV. PROTECT. AGENCY USA

INSTITUTION
SYSTEM DEVELOPMENT CORPORATION
2500 COLORADO AVENUE SANTA MONICA, CA. 90406 USA

TITLE OF PAPER
DEVELOPMENT OF A SIMULATION MODEL FOR ESTIMATING GROUND LEVEL CONCENTRATIONS OF PHOTOCHEMICAL POLLUTANTS

LANGUAGE ENGLISH

REPORT NO. TM-(L)-4673/000/00 NO. OF PAGES DATE OF PUBLICATION 71-01-

NUMBER OF AUTHORS 4 M. WEISBURD L. WAYNE

DESCRIPTORS

1007 MODEL TYPE
2020 CARBON MONOXIDE
2038 NITROGEN OXIDES
2070 OXIDANTS
4073 FUNDAMENTAL (RESEARCH, DEVELOPMENT)
6106 CHEMICAL TRANSFORMATIONS
10014 VALIDATION

REMARKS/ABSTRACT
PHOTOCHEMICAL SIMULATION MODEL DEVELOPED BASED ON LAGRANGIAN MOVING COORDINATE SYSTEM. AIR PARCEL FOLLOWED ALONG DYNAM. WIND TRAJECTORY, PHOTOCHEM. REACTIONS SIMULATED BY 33-STEP REACTION MECHANISM CONTAINING 25 CHEMICAL SPECIES. MODEL HAS SHOWN QUANTITATIVE VALIDATION WITH RESPECT TO SIMULTANEOUS PREDICTION OF O3, CO, NO & NO2 AS LEAST AS GOOD AS PERFORMANCE OF OTHER AIR POLLUTION MODELS TO DATE.

NEW

AVAILABLE FROM

INSTITUTION
GENERAL RESEARCH CORPORATION
P.O.BOX 3587, SANTA BARBARA, CA. 93105 U.S.A.

TITLE OF PAPER
CONCEPTS AND APPLICATIONS OF PHOTOCHEMICAL SMOG MODELS

LANGUAGE ENGLISH

REPORT NO. TECHN.MEMORAND.1516 NO. OF PAGES 120 [illegible]

NUMBER OF AUTHORS 2 A. ESCHENROEDER [illegible]

DESCRIPTORS

1007 MODEL TYPE
1031 GRID
2038 NITROGEN OXIDES
2046 ORGANIC GASES
2070 OXIDANTS
3026 URBAN
4081 URBAN AND REGIONAL PLANNING
5010 DISPERSION PARAMETERS
6106 CHEMICAL TRANSFORMATIONS
9105 SHORT TERM
10014 VALIDATION
10030 PARAMETER DETERMINATION

REMARKS/ABSTRACT
FOLLOWING REVIEW OF MATH. METHODS TO ANALYZE AIR POLLUTION, [illegible]
DEVELOPMTS. OF INPUTS, TECHNIQUES & VALIDATIONS PRESENTED FOR PHOTOCHEM. SMOG MODELING / FINITE DIFFERENCE FORMULATIONS TO [illegible] CONCENTRATION HISTORIES/ CHEM. KINETICS EXPRESSED AS LUMPED PARAMETER REACTION MECHANISMS (LAB. DATA FROM LITERATURE) / TURBULENT [illegible] COEFFICIENTS DEPENDING ON HEIGHT & TIME COME FROM ATMOS. MEASUREMTS.

ENTRY NO. 720001

AVAILABLE FROM
FED. HIGHWAY ADMIN. OFFICE OF RESEARCH WASHINGTON, D.C. 20590

INSTITUTION
CALIFORNIA DEPARTMENT OF PUBLIC WORK 1120 N STREET, P.O. BOX 1139
SACRAMENTO, CALIFORNIA 95814 USA

TITLE OF PAPER
AIR QUALITY MANUAL. VOLUME I. METEOROLOGY AND ITS INFLUENCE ON THE DISPERSION OF POLLUTANTS FROM HIGHWAY LINE SOURCES

LANGUAGE ENGLISH

REPORT NO. -MR6570825(1)-72-11 NO. OF PAGES 169 DATE OF PUBLICATION 72-04-

NUMBER OF AUTHORS 3 J. BEATON A. RANZIERI

DESCRIPTORS

3018 LOCAL
4073 FUNDAMENTAL (RESEARCH, DEVELOPMENT)
8125 LINE SOURCE
8222 STATIONARY SOURCE
5029 TURBULENCE CLASSES

REMARKS/ABSTRACT
BASIC FUNDAMENTALS OF METEOROLOGY, THEIR EFFECT ON POLLUTANT CONCENTRATIONS ON AND WITHIN HIGHWAY CORRIDOR. GENERAL RELATION BETWEEN METEOROLOGY AND AIR POLLUTION, ROLE OF METEOROLOGY IN TRANSPORT AND DISPERSION OF POLLUTANTS, METHOD TO ESTIMATE SURFACE STABILITY OF ATMOSPHERE, METEOROLOGICAL SURVEYS, METEOROLOGICAL FACTORS IN HIGHWAY ROUTE LOCATION, HIGHWAY LINE SOURCE MODEL, SOURCES OF MET. DATA

ENTRY NO. 720002

AVAILABLE FROM
FED. HIGHWAY ADMIN. OFFICE OF RESEARCH WASHINGTON, D.C. 20590

INSTITUTION
CALIFORNIA DEPARTMENT OF PUBLIC WORK 1120 N STREET, P.O. BOX 1139
SACRAMENTO, CALIFORNIA 95814 USA

TITLE OF PAPER
AIR QUALITY MANUAL. VOLUME IV. MATHEMATICAL APPROACH TO ESTIMATING HIGHWAY IMPACT ON AIR QUALITY

LANGUAGE ENGLISH

REPORT NO. -MR5670825(4)-72-08 NO. OF PAGES 071 DATE OF PUBLICATION 72-04-

NUMBER OF AUTHORS 4 J. BEATON A. RANZIERI

DESCRIPTORS

3034 REGIONAL
4073 FUNDAMENTAL (RESEARCH, DEVELOPMENT)
8125 LINE SOURCE
8222 STATIONARY SOURCE

REMARKS/ABSTRACT
METHOD TO PREDICT POLLUTANT CONCENTRATIONS WITH AND WITHOUT A NEW HIGHWAY WITHIN HIGHWAY CORRIDOR AND MESOSCALE. CORRIDOR: REGION EXTENDING FROM HIGHWAY DOWNWIND TO THE POINT WHERE AMBIENT POLLUTANT LEVELS ARE REACHED. MESOSCALE AREA: AREA THROUGHOUT WHICH TRAFFIC VOLUMES IN THE SURFACE TRAFFIC NETWORK ARE SIGNIFICANTLY AFFECTED BY THE CONSTRUCTION OF THE NEW HIGHWAY.

ENTRY NO. 720005

AVAILABLE FROM
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INSTITUTION
GCA CORPORATION
BEDFORD, MASSACHUSETTS 01730 USA

TITLE OF PAPER
DEVELOPMENT OF DOSAGE MODELS AND CONCEPTS

LANGUAGE ENGLISH

REPORT NO. DTC-TR-72-609-I NO. OF PAGES 389 DATE OF PUBLICATION 72-02-

NUMBER OF AUTHORS 7 H. CRAMER J. BJORKLUND

DESCRIPTORS

1007 MODEL TYPE
3026 URBAN
3034 REGIONAL
4073 FUNDAMENTAL (RESEARCH, DEVELOPMENT)
5029 TURBULENCE CLASSES
5037 PLUME RISE
5045 TOPOGRAPHY
5053 ROUGHNESS OF GROUND
5070 MIXING HEIGHT / INVERSION HEIGHT
6211 SEDIMENTATION / FALL OUT
6220 WASH OUT
6106 CHEMICAL TRANSFORMATIONS
12017 PROGRAM DESCRIPTION
12025 PROGRAM LISTING
8400 METEOROLOGICAL STATISTICS
8516 WIND VARIANCE WITH HEIGHT

REMARKS/ABSTRACT
DEVELOPMENT, COMPUTER IMPLEMENTATION, AND APPLICATION OF GENERALIZED MODELS ADJUSTABLE TO VARIATION IN EMISSION, SOURCE DIMENSIONS & DECAY AND ALLOWING FOR SEDIMENTATION, WASHOUT, REMOVAL PROCESSES, BUOYANT RISE OF HOT EFFLUENTS, MIXING LAYER, INTENSITY OF TURBULENCE, SHEAR OF WIND, METEOR. STRUCTURE, TERRAIN & OTHER SURFACE FEATURES. INTERIM VALUES OF METEOR. INPUTS, COMPUTER PROGRAMS OF THE MODELS.

ENTRY NO. 720006

AVAILABLE FROM
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BATTELLE-PACIFIC NORTHWEST LABORATORY
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TITLE OF PAPER
NATURAL PRECIPITATION WASHOUT OF SULFUR DIOXIDE

LANGUAGE ENGLISH

REPORT NO. BNW 389 NO. OF PAGES 153 DATE OF PUBLICATION 72-02-

NUMBER OF AUTHORS 3 M. DANA J. HALES

DESCRIPTORS

1007 MODEL TYPE
2011 SULFUR DIOXIDE
3018 LOCAL
4073 FUNDAMENTAL (RESEARCH, DEVELOPMENT)
6220 WASH OUT
8117 POINT SOURCE
8222 STATIONARY SOURCE
8320 CONTINUOUS SOURCE
10014 VALIDATION
10049 OTHERS

REMARKS/ABSTRACT
SO2 WASHOUT BY PRECIPITATION FROM PLUMES OF COAL-FIRED POWER PLANTS. WASHOUT MODELING, LABORATORY RESEARCH IN SOLUBITY AND MASS-TRANSFER IN SO2/WATER SYSTEM, AND FIELD EXPERIMENTS. 2 WASHOUT MODELS, FIRST BASED ON LINEAR THEORY, SECOND ACCOUNTS FOR NON-LINEARITY AND IS NOT RESTRICTED TO VERTICAL RAINFALL BUT NECESSITATES COMPUTER, FIELD-STUDY PROGRAM EXAMINED WASHOUT OF SO2 IN UNPOLLUTED ATMOSPHERE.

ENTRY NO. 720010

AVAILABLE FROM
SEE INSTITUTION

INSTITUTION
INSTITUT FUER THEORETISCHE METEOROLOGIE FREIE UNIVERSITAET BERLIN
THIELALLEE 49 D-1000 BERLIN 33

TITLE OF PAPER
ANWENDUNGSMOEGLICHKEITEN VON MATHEMATISCH-METEOROLOGISCHEN DIFFUSIONSMODELLEN ZUR LOESUNG VON FRAGEN DER LUFTREINHALTUNG

LANGUAGE GERMAN

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NUMBER OF AUTHORS 1

H. FORTAK

DESCRIPTORS

1007 MODEL TYPE
3026 URBAN
4073 FUNDAMENTAL (RESEARCH, DEVELOPMENT)

REMARKS/ABSTRACT
GENERAL DEFINITION OF MATH.-METEOR. IMMISSION SIMULATION/ SOLVING PROBLEMS OF IMMISSION CONTROL STRATEGY WITH SIMULATION MODELS/ OPTIMIZING WARNING SYSTEM & PLANNING TECHNICALLY & ECONOMICALLY WITH A CONTROL LOOP/ PROBLEMS IN DEVELOPING MODELS MOSTLY METEOR. ONES, BUT ALSO PHYSICAL, PHYSICAL-CHEMICAL & MATHEMATICAL PROBLEMS IN IMMISSION-ORIENTED ENVIRONMENTAL PROTECTION/ A STIMULUS TO RESEARCH

30

ENTRY NO. 720012

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INSTITUTION
NORWEGIAN INSTITUTE FOR AIR RESEARCH
BOX 115 N-2007 KJELLER

TITLE OF PAPER
THE THREE-DIMENSIONAL TRANSPORT MODEL FOR AIR POLLUTION IN AN URBAN AREA WITH APPLICATION TO SO2-CONCENTRATION IN OSLO

LANGUAGE ENGLISH

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NUMBER OF AUTHORS 1 K. GRONSKEI

DESCRIPTORS

1007 MODEL TYPE
2011 SULFUR DIOXIDE
3026 URBAN
4073 FUNDAMENTAL (RESEARCH, DEVELOPMENT)
5061 LOW WIND SPEED
8508 WIND VARIANCE IN SPACE
10014 VALIDATION

REMARKS/ABSTRACT

A 3-DIMENSIONAL TRANSPORT MODEL FOR AIR POLLUTION IN URBAN AREA PRESENTED. FIRST ATTEMPT TO CONSIDER SYSTEMATIC VERTICAL MOTION AND INHOMOGENEOUS HORIZONTAL MOTION IN MODELING AIR POLLUTION NEAR GROUND. PRESENTED WIND MODEL WORKED FAIRLY WELL ON 11 CASE STUDIES IN OSLO DURING WINTER TIME. IT ALSO GAVE A REASONABLE WIND ESTIMATE DURING PERIODS WITH WEAK WIND CONDITIONS, WHICH ARE OFTEN OBSERVED IN OSLO.

ENTRY NO. 720014

AVAILABLE FROM
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INSTITUTION
LAWRENCE LIVERMORE LABORATORY
P.O. BOX 808 LIVERMORE, CA. 94550 USA

TITLE OF PAPER
ZONAL ATMOSPHERIC MODEL ZAM2

LANGUAGE ENGLISH

REPORT NO. UCRL 74254 NO. OF PAGES 064 DATE OF PUBLICATION 72-10-

NUMBER OF AUTHORS 1 M. MACCRACKEN

DESCRIPTORS

1007 MODEL TYPE
3042 LONG DISTANCE
4073 FUNDAMENTAL (RESEARCH, DEVELOPMENT)

REMARKS/ABSTRACT

2-DIMENSIONAL GENERAL CIRCULATION MODEL WITH A 5 GRAD LATITUDE GRID. PRESENTLY BEING EXTENDED VERTICALLY INTO STRATOSPHERE. LONGITUDINAL DERIVATIVES SET TO ZERO, SIMULATING MERIDIONAL TRANSPORT BY HORIZONTAL WAVES AND EDDIES. THERMODYNAMICS AND HYDROLOGY OF MOIST ATMOSPHERE, EFFECTS OF SOLAR AND LONG WAVE RADIATION, CLOUDINESS, CONDENSATION, EVAPORATION, SURFACE FRICTIONAL DRAG, SUBGRID SCALE CONV.

ENTRY NO. 720039
NEW

AVAILABLE FROM

INSTITUTION
GENERAL RESEARCH CORPORATION
P.O.BOX 3587, SANTA BARBARA, CA. 93105 U.S.A.

TITLE OF PAPER
A VIEW OF FUTURE PROBLEMS IN AIR POLLUTION MODELING

LANGUAGE ENGLISH

REPORT NO. TECHN.MEMORAND.1631 NO. OF PAGES 40 DATE OF PUBLICATION 72-00-

NUMBER OF AUTHORS 3 A. ESCHENROEDER J. MARTINEZ

DESCRIPTORS

1007 MODEL TYPE
2046 ORGANIC GASES
4057 IN ADDITION TO MEASUREMENTS
5010 DISPERSION PARAMETERS
5053 ROUGHNESS OF GROUND
6106 CHEMICAL TRANSFORMATIONS
12017 PROGRAM DESCRIPTION

REMARKS/ABSTRACT

2 PHENOMEN. AREAS IN PHOTOCHEM. MODELING EXAMINED FURTHER; TURBULENT FLUCTUATS. & GAS-SURFACE EFFECTS INTERACTING WITH CHEMICAL RATE PROCESSES, USING INTERPRETATS. OF LAB & ATMOSPHERIC DATA. IMPLEMENTATN. OF COMPUTER CODES SUGGESTED. TURBULENCE EFFECTS ON CHEMICAL RATES TO BE ALLOWED FOR IN CASES OF LARGE CONCENTRATN.FLUCTUATS. GAS-SURFACE EFFECTS ON MODEL FIDELITY DUE TO URBAN & AEROSOL SURFACES DISCUSSED.

ENTRY NO. 730004

AVAILABLE FROM
NAT. AERON. & SPACE ADMIN. MARSHALL SP. FL. CTR, ALABAMA 35812

INSTITUTION
H.E. CRAMER COMPANY, INC. 540 ARAPEEN DRIVE, P.O.BOX 8049
SALT LAKE CITY, UTAH 84108 USA

TITLE OF PAPER
NASA/MSFC MULTILAYER DIFFUSION MODELS AND COMPUTER PROGRAM FOR OPERATIONAL PREDICTION OF TOXIC FUEL HAZARDS

LANGUAGE ENGLISH

REPORT NO. NASA CR-129006 NO. OF PAGES 298 DATE OF PUBLICATION 73-06-

NUMBER OF AUTHORS 3 R. DUMBAULD J. BJORKLUND

DESCRIPTORS

1007 MODEL TYPE
3018 LOCAL
4073 FUNDAMENTAL (RESEARCH, DEVELOPMENT)
5037 PLUME RISE
8117 POINT SOURCE
8125 LINE SOURCE
8214 MOBILE SOURCE
8311 DISCONTINUOUS SOURCE
8400 METEOROLOGICAL STATISTICS
12017 PROGRAM DESCRIPTION
12025 PROGRAM LISTING

REMARKS/ABSTRACT

MODEL TO APPLY METEOROLOGICAL INFORMATION TO ESTIMATE TOXIC FUEL HAZARDS DUE TO ROCKET LAUNCHES OR ACCIDENTAL COLD SPILLS AND LEAKS OF TOXIC FUELS. GENERALIZED CONCENTRATION AND DOSAGE MODELS AS BASIS OF MULTILAYER CONCEPT. FORMULAE FOR BUOYANT RISE OF HOT EXHAUST CLOUDS OR PLUMES FROM CONFLAGRATIONS. MULTILAYER DIFFUSION MODELS, DESCRIPTION OF COMPUTER PROGRAM. EXAMPLES

ENTRY NO. 730009

AVAILABLE FROM
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INSTITUTION
BATTELLE PACIFIC NORTHWEST LABORATORIES
RICHLAND, WASHINGTON 99352 USA

TITLE OF PAPER
ADVANCES IN THE THEORY AND MODELLING OF POLLUTANT-GAS WASHOUT

LANGUAGE ENGLISH

REPORT NO. CONF-731057-1 NO. OF PAGES 007 DATE OF PUBLICATION 73-04-

NUMBER OF AUTHORS 3 J. HALES M. DANA

DESCRIPTORS

1007 MODEL TYPE
2011 SULFUR DIOXIDE
6220 WASH OUT
10014 VALIDATION

REMARKS/ABSTRACT
A PROGRAM FOR EVALUATION OF PRECIPITATION SCAVENGING AS A MECHNISM OF REMOVAL OF CONTAMINANTS FROM POWER PLANT PLUMES HAS BEEN IN PROGRESS. THE PROGRESS OF THIS PROGRAM IS DESCRIBED AND SOME COMPARISONS OF MEASURED SO2 WASHOUT CONCENTRATIONS WITH THOSE PREDICTED BY REVERSIBLE AND IRREVERSIBLE GAS WASHOUT MODELS ARE PRESENTED.

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INSTITUTION
PACIFIC ENVIRONMENTAL SERVICES, INC.
1930 14TH STREET SANTA MONICA, CALIFORNIA 90404 USA

TITLE OF PAPER
CONTROLLED EVALUATION OF THE REACTIVE ENVIRONMENTAL SIMULATION MODEL (REM). VOLUME II: USER'S GUIDE

LANGUAGE ENGLISH

REPORT NO. EPA R4-73-013B NO. OF PAGES DATE OF PUBLICATION 73-02-

NUMBER OF AUTHORS 3 A. KOKIN L. WAYNE

DESCRIPTORS

1007 MODEL TYPE
12017 PROGRAM DESCRIPTION

REMARKS/ABSTRACT
DESIGN, OPERATION, & USE OF REM. MAIN PURPOSE IS TO EXPLAIN TO THE USER HOW REM WORKS &, FROM EXPERIENCE GAINED IN OPERATION, HOW IT CAN BEST BE UTILIZED: DETAILED INSTRUCTIONS FOR SETTING UP INPUT DECKS, FOR PERFORMING CONTROL STRATEGIES/ AN UNDERSTANDING OF METHODOLOGY, TECHNIQUES AND CALCULATIONAL PROCEDURES/ INFORMATION TO ENABLE PROGRAM MODIFICATIONS TO BE ACCOMPLISHED.

ENTRY NO. 730019

AVAILABLE FROM
U.S. EPA MET. LABORATORY RESEARCH TRIANGLE PARK, NC. 27711

INSTITUTION
CENTER FOR THE ENVIRONMENT AND MAN, INC.
HARTFORD, CONNECTICUT 06103 USA

TITLE OF PAPER
TESTS OF AN URBAN METEOROLOGICAL-POLLUTANT MODEL USING CO VALIDATION DATA IN THE LOS ANGELES METROPOLITAN AREA. VOLUME I

LANGUAGE ENGLISH

REPORT NO. CEM-490-A-VOL-1 NO. OF PAGES 184 DATE OF PUBLICATION 73-05-

NUMBER OF AUTHORS 2 J. PANDOLFO J. JACOBS

DESCRIPTORS

1007 MODEL TYPE
2020 CARBON MONOXIDE
3026 URBAN
4073 FUNDAMENTAL (RESEARCH, DEVELOPMENT)
10014 VALIDATION

REMARKS/ABSTRACT
THE URBAN BOUNDARY-LAYER MODEL HAS BEEN TESTED WITH DATA FROM LOS ANGELES, CALIFORNIA. THE TESTS WERE INTENDED TO ESTIMATE THE DEGREE TO WHICH OBSERVED SPATIAL AND TEMPORAL VARIATIONS OF METEOROLOGICAL CONDITIONS AND CONCENTRATIONS OF A STABLE AIR POLLUTANT COULD BE REALISTICALLY SIMULATED BY THE MODEL.

ENTRY NO. 730021

AVAILABLE FROM
SEE INSTITUTION

INSTITUTION
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION AIR RESOURCES LAB
LAS VEGAS, NEVADA 89102 USA

TITLE OF PAPER
NUMER. PREDICTION OF THE MESOSCALE TRANSPORT OF ATMOS. EFFLUENTS:
PHILOSOPHY & MORPHOLOGY OF EXP. MODELS FOR PREDICTING THE WIND & ...

LANGUAGE ENGLISH

REPORT NO. NOAA-TM-ERL-ARL-37 NO. OF PAGES 063 DATE OF PUBLICATION 73-05-

NUMBER OF AUTHORS 2 D. RANDERSON J. CORNETT

DESCRIPTORS

1007 MODEL TYPE
2097 RADIOACTIVE COMPOUNDS
3034 REGIONAL
4073 FUNDAMENTAL (RESEARCH, DEVELOPMENT)
8516 WIND VARIANCE WITH HEIGHT
10014 VALIDATION

REMARKS/ABSTRACT
2 EXP. NUM. MODELS DESCRIBED AND TENTATIVELY VERIFIED. ONE PREDICTS MESOSCALE WIND FIELD OVER MOUNTAINOUS TERRAIN, THE OTHER FORECASTS TEMPORAL & SPATIAL CHANGES IN AIRBORNE RADIOACTIVITY FIELD DUE TO AN ACCIDENTAL RELEASE OF DEBRIS DURING NUCL. TEST ON NEVADA TEST SITE. MESOSCALE WIND MODEL DERIVED FROM ASSUMPTION OF CONSERVATION OF VERTICAL WINDSHEAR FOR AT LEAST 6 H (HORIZONTAL VORTICITY CONSERVED).

38

ENTRY NO. 730022

AVAILABLE FROM
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INSTITUTION
ENERGY & ENVIRONMENTAL SYSTEMS DIVISION ARGONNE NATIONAL LABORATORY
ARGONNE, ILLINOIS 60439 USA

TITLE OF PAPER
AIRPORT VICINITY AIR POLLUTION STUDY

LANGUAGE ENGLISH

REPORT NO. AD-780-049/3 (R.A.) NO. OF PAGES 295 DATE OF PUBLICATION 73-12-

NUMBER OF AUTHORS 5 D. ROTE R. HECHT

DESCRIPTORS

1007 MODEL TYPE
3018 LOCAL
4073 FUNDAMENTAL (RESEARCH, DEVELOPMENT)
10014 VALIDATION

REMARKS/ABSTRACT

DEVELOPMENT OF COMPUTER MODEL TO DETERMINE IMPACT OF AIRPORT ON AIR QUALITY IN ITS VICINITY, SUPPORTED BY AIR QUALITY MONITORING & EMISSION ACTIVITY DATA ACQUISITION PROGRAM. TEST SITES SELECTED, BEING REPRESENTATIVE OF PREDOMINANTLY COMMERCIAL AIRPORT OR PREDOMINANTLY GENERAL AVIATION ONE, RESPECTIVELY. ACTIVITY SIMULATION & AIR QUALITY MODEL DISCUSSED. COMPUTATIONS & COMPARISON WITH OBSERVATIONS.

ENTRY NO. 73062

AVAILABLE FROM
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INSTITUTION
PACIFIC ENVIRONMENTAL SERVICES, INC.
1930 14TH STREET SANTA MONICA, CA. 90404 USA

TITLE OF PAPER
CONTROLLED EVALUATION OF THE REACTIVE ENVIRONMENTAL SIMULATION MODEL (REM). VOLUME I: FINAL REPORT.

LANGUAGE ENGLISH

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NUMBER OF AUTHORS 3 L. WAYNE A. KOKIN

DESCRIPTORS

1007 MODEL TYPE
4073 FUNDAMENTAL (RESEARCH, DEVELOPMENT)
5029 TURBULENCE CLASSES
5070 MIXING HEIGHT / INVERSION HEIGHT
6106 CHEMICAL TRANSFORMATIONS
7102 OCCASIONAL VARIATION OF PARAMETERS
8508 WIND VARIANCE IN SPACE
10014 VALIDATION

REMARKS/ABSTRACT
DEVELOPMENT & VALIDATION COMPLETED OF OPERATIONAL VERSION OF REM. IT IS BASED ON LAGRANGIAN MOVING COORDINATE SYSTEM ENABLING NUMERICAL SIMULATION OF CHEM. REACTIONS TAKING PLACE IN A PARCEL OR COLUMN OF AIR MOVING ALONG DYNAMIC WIND TRAJECTORY. REM IS DESIGNED TO HANDLE LARGE CHEMICAL MECHANISMS TO ASSESS IMPACT ON AIR QUALITY OF FUELS, PROPULSION SYSTEMS ETC. VALIDATION FOR LOS ANGELES REGION SATISFYING

NEW

AVAILABLE FROM

INSTITUTION
FINNISH METEOROLOGICAL INSTITUTE
HELSINKI, FINLAND

TITLE OF PAPER
A PARTICLE-IN-CELL METHOD FOR CALCULATING LONG RANGE TRANSPORT OF AIRBORNE POLLUTANTS

LANGUAGE ENGLISH

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NUMBER OF AUTHORS 1 [illegible]

DESCRIPTORS

1031 GRID
2011 SULFUR DIOXIDE
3042 LONG DISTANCE
4073 FUNDAMENTAL (RESEARCH, DEVELOPMENT)
9105 SHORT TERM
10014 VALIDATION

REMARKS/ABSTRACT
DIFFERENCE SCHEME OF EAGAN & MAHONEY USED TO [illegible] THE ADVECTIVE TRANSPORT IN ORDER TO ELIMINATE PSEUDO-DIFFUSION ERRORS. CALCULATION OF THE SPREAD OF SO2 OVER NORTH-WESTERN EUROPE [illegible] GIVEN AS AN EXAMPLE OF THE APPLICATION OF THE METHOD & THE ESTIMATED CONCENTRATIONS OVER FINLAND ARE COMPARED WITH [illegible]

41

ENTRY NO. 740001

AVAILABLE FROM
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INSTITUTION
LANDESANSTALT FUER UMWELTSCHUTZ BADEN-WUERTTEMBERG
GRIESBACHSTR. 3 D-7500 KARLRUHE 21 FED. REP. OF GERMANY

TITLE OF PAPER
VERAENDERUNG DES VERTIKALEN TEMPERATURPROFILES UND DER AUSBREITUNGS-BEDINGUNGEN DURCH EINEN NAECHTLICHEN BERGWIND ('HOELLENTAELER')

LANGUAGE GERMAN

REPORT NO. BERICHT NR. 20/74 NO. OF PAGES DATE OF PUBLICATION 74- -

NUMBER OF AUTHORS 1 D. AHRENS

DESCRIPTORS

4014 LICENSING PROCEDURE
5045 TOPOGRAPHY
8508 WIND VARIANCE IN SPACE

REMARKS/ABSTRACT
METEOROLOGICAL INFLUENCES DUE TO TOPOGRAPHY ARE STUDIED FOR THE SPECIFIC EXAMPLE OF THE 'HOELLENTAL', A VALLEY IN THE BLACK FOREST. POSSIBLE OBSTRUCTIONS DUE TO PLANNED NEW BUILDINGS WITHIN THE FLOW FIELD AND THEIR CONSEQUENCES FOR THE AMBIENT AIR QUALITY SITUATION ARE DISCUSSED.

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AVAILABLE FROM
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INSTITUTION
BATTELLE-PACIFIC NORTHWEST LABORATORY
RICHLAND, WASHINGTON 99352 USA

TITLE OF PAPER
PRECIPITATION SCAVENGING OF ORGANIC CONTAMINANTS

LANGUAGE ENGLISH

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NUMBER OF AUTHORS . NN .

DESCRIPTORS

2046 ORGANIC GASES
3018 LOCAL
4073 FUNDAMENTAL (RESEARCH, DEVELOPMENT)
6220 WASH OUT
7200 SYSTEMATICAL VARIATION OF PARAMETERS
8117 POINT SOURCE
8222 STATIONARY SOURCE
10030 PARAMETER DETERMINATION
11100 ADVANTAGES

REMARKS/ABSTRACT
EPAEC GAS WASHOUT MODEL APPLIED TO TRACERS ETHYLACETOACETATE AND DI-ETHYLAMINE. SOURCE STRENGTH, VAPOR SOLUBILITY AND BASIC METEOROLOGI-CAL PARAMETERS USED TO ESTIMATE TRACER CONCENTRATION IN DOWNWIND RAIN SAMPLES. ERROR ANALYSIS: POORLY DEFINED TRACER SOLIBILITY MOST CRITICAL. FIELD RESULTS: FRACTIONAL VAPOR WASHOUT PER KM. RESULTS & MODELS MAY BE USED TO ESTIMATE CONCENTS. ALONG PLUME TRAJECTORY.

ENTRY NO. 740007

AVAILABLE FROM
ESEERCO 3890 CARMAN ROAD SCHENECTADY, NEW YORK 12303 USA

INSTITUTION
ENVIRONMENTAL RESEARCH AND TECHNOLOGY, INC.
696 VIRGINIA ROAD CONCORD, MA 01742 USA

TITLE OF PAPER
DEVELOPMENT AND VERIFICATION OF A MATHEMATICAL MODEL FOR THE PREDICTION OF PLUME RISE AND DISPERSION FROM GAS TURBINE GENERATORS

LANGUAGE ENGLISH

REPORT NO. ERT REPORT #P-715 NO. OF PAGES DATE OF PUBLICATION 74-10-

NUMBER OF AUTHORS 6 D. DOCKERY J. GAERTNER

DESCRIPTORS

1007 MODEL TYPE
3018 LOCAL
4073 FUNDAMENTAL (RESEARCH, DEVELOPMENT)
5037 PLUME RISE
6220 WASH OUT
7200 SYSTEMATICAL VARIATION OF PARAMETERS
8117 POINT SOURCE
10022 CALIBRATION
10049 OTHERS
11100 ADVANTAGES
11207 LIMITS OF APPLICABILITY

REMARKS/ABSTRACT
DEVELOPMENT, VALIDATION AND CALIBRATION OF MODELS OF PLUME RISE AND DISPERSION OF GAS TURBINE GENERATOR EMISSIONS. CONSERVATION OF MASS, MOMENTUM AND ENERGY, NUMERICAL MODEL UNDER NON-DOWNWASH CONDITIONS, ANALYTICAL MODEL FOR MAX. IMMISSIONS UNDER HIGH WIND SPEED DOWNWASH CONDITIONS. FIELD MEASUREMENTS PROVIDED PLUME HEIGHT DATA. SENSITIVITY TEST OF NUMERICAL MODEL & DOWNWASH DATA FROM WIND TUNNEL TESTS.

ENTRY NO. 740010

AVAILABLE FROM
U.S. ENV. PROT. AGENCY RESEARCH TRIANGLE PARK, N.C. 27711

INSTITUTION
ENVIRONMENTAL RESEARCH & TECHNOLOGY, INC.
696 VIRGINIA ROAD CONCORD, MA. 01742 USA

TITLE OF PAPER
ANALYSIS OF THE RELIABILITY OF A SUPPLEMENTARY CONTROL SYSTEM FOR SO2-EMISSIONS FROM A POINT SOURCE

LANGUAGE ENGLISH

REPORT NO. ERT #P-669 NO. OF PAGES DATE OF PUBLICATION 74-06-

NUMBER OF AUTHORS 7 J. GAERTNER B. EGAN

DESCRIPTORS

1007 MODEL TYPE
3034 REGIONAL
4049 SCHEDULING OF MEASUREMENTS
7200 SYSTEMATICAL VARIATION OF PARAMETERS
9202 LONG TERM
9229 FREQUENCY DISTRIBUTIONS
12017 PROGRAM DESCRIPTION

REMARKS/ABSTRACT

A NUMBER OF ANALYTICAL TOOLS WERE DEVELOPED TO ASSESS SUPPLEMENTARY CONTROL SYSTEM (SCS) RELIABILITY QUANTIFIED BY THE FREQUENCY DISTRIBUTIONS OF MAXIMUM AMBIENT CONCENTRATIONS/ DETERMINING THE BEST DISTRIBUTION OF MONITORS FOR SCS APPLICATIONS/ MEASURING THE EFFECTS ON SCS RELIABILITY OF METEOROLOGICAL FORECASTING ERROR, EMISSIONS FORECASTING ERROR, & AIR QUALITY MODELING ERROR.

ENTRY NO. 740014

AVAILABLE FROM
SEE INSTITUTION

INSTITUTION
BATTELLE PACIFIC NORTHWEST LABORATORIES
RICHLAND, WASHINGTON 99352 USA

TITLE OF PAPER
APPLICATION OF THE EPAEC SCAVENGING MODEL TO CALCULATIONS FOR INDUSTRIAL PLUMES

LANGUAGE ENGLISH

REPORT NO. CONF-741003-7 NO. OF PAGES 010 DATE OF PUBLICATION 74- -

NUMBER OF AUTHORS 3 J. HALES M. DANA

DESCRIPTORS

1007 MODEL TYPE
6220 WASH OUT
11100 ADVANTAGES

REMARKS/ABSTRACT
EPAEC COMPUTER CODE WAS DEVELOPED TO PREDICT RAINOUT OF GASES FROM INDUSTRIAL PLUMES BY NATURAL PRECIPITATION. PRIMARY MOTIVATION FOR CREATING THIS MODEL WAS TO ACCOUNT MATHEMATICALLY FOR REVERSIBLE CHARACTERISTICS OF GAS ABSORPTION BY RAIN, A PHENOMENON WHOSE PRESENCE HAS BEEN INDICATED BY RESULTS OF PREVIOUS FIELD STUDIES. MODEL APPLIED TO A NUMBER OF PRACTICAL SITUATIONS WITH APPARENT SUCCESS.

ENTRY NO. 740018

AVAILABLE FROM
AIR RESOURCES BOARD 11709-11TH STREET SACRAMENTO, CA. 95814

INSTITUTION
SYSTEMS, SCIENCE AND SOFTWARE
P.O. BOX 1620 LA JOLLA, CALIFORNIA 92037 USA

TITLE OF PAPER
EXPLOR - EXAMININATION OF POLLUTION LEVELS OF ROADWAYS

LANGUAGE ENGLISH

REPORT NO. ARB-659-74-28 NO. OF PAGES DATE OF PUBLICATION 74-01-15

NUMBER OF AUTHORS 2 J. KIRSCH B. MASON

DESCRIPTORS

1007 MODEL TYPE
2020 CARBON MONOXIDE
3018 LOCAL
10014 VALIDATION

REMARKS/ABSTRACT
EXPLOR, A CONSERVATION OF MASS MATHEMATICAL MODEL WITH A SECOND ORDER ADVECTION-DIFFUSION SCHEME, IS USED TO CALCULATE OFF-ROADWAY, GROUND LEVEL CARBON MONOXIDE CONCENTRATIONS. EXPLOR HAS BEEN VALIDATED TO WITHIN THE EXPERIMENTAL ERROR OF THE SUPPLIED TRAFFIC DATA.

ENTRY NO. 740021

AVAILABLE FROM
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INSTITUTION
LAWRENCE LIVERMORE LABORATORY
P.O. BOX 808 LIVERMORE, CA 94550 USA

TITLE OF PAPER
ADAPTATION OF A THREE-DIMENSIONAL ATMOSPHERIC TRANSPORT-DIFFUSION MODEL TO RAINOUT ASSESSMENTS

LANGUAGE ENGLISH

REPORT NO. CONF-741003-2 NO. OF PAGES 048 DATE OF PUBLICATION 74-09-16

NUMBER OF AUTHORS 2 R. LANGE J. KNOX

DESCRIPTORS

1007 MODEL TYPE
3034 REGIONAL
4073 FUNDAMENTAL (RESEARCH, DEVELOPMENT)
5010 DISPERSION PARAMETERS
6220 WASH OUT
8117 POINT SOURCE
8311 DISCONTINUOUS SOURCE
8516 WIND VARIANCE WITH HEIGHT
10014 VALIDATION

REMARKS/ABSTRACT

HYBRID LAGRANGIAN-EULERIAN ATMOSPHERIC TRANSPORT-DIFFUSION MODEL DEVELOPED AND VALIDATED FOR CALCULATING 3-DIMENSIONAL DISTRIBUTION OF ATMOSPHERIC POLLUTANTS IN TRANSIENT REGIONAL FLOW FIELDS. THIS CODE, ADPIC, VALIDATED AGAINST ANALYTICAL SOLUTIONS AS (1) PUFF RELEASE IN STEADY UNIDIRECTIONAL SHEAR FLOW AND (2) PUFF RELEASE WITH SCALE-DEPENDENT HORIZONTAL & VERTICAL EDDY DIFFUSION COEFFICIENTS.

ENTRY NO. 740022

AVAILABLE FROM
SEE INSTITUTION

INSTITUTION
INSTITUT FUER THEORETISCHE METEOROLOGIE FREIE UNIVERSITAET BERLIN
THIELALLEE 49 D-1000 BERLIN FED. REP. OF GERMANY

TITLE OF PAPER
DER GEGENWAERTIGE STAND DER FORSCHUNG AUF DEM GEBIET DER IMMISSIONS-BELASTUNG VON INDUSTRIALISIERTEN STAEDTEN

LANGUAGE GERMAN

REPORT NO. NO. OF PAGES DATE OF PUBLICATION 74- -

NUMBER OF AUTHORS 1 C. LUDWIG

DESCRIPTORS

1007 MODEL TYPE
3026 URBAN

REMARKS/ABSTRACT
A BRIEF DESCRIPTION OF PROBLEMS IN AIR POLLUTION METEOROLOGY AND THEIR INFLUENCES ON TRANSPORT AND DIFFUSION PROCESSES IS GIVEN, FOLLOWED BY A COMPREHENSIVE DISCUSSION OF SOLUTION METHODS FOR THE TRANSMISSION EQUATION. THE STATE OF THE ART IN MULTIPLE-SOURCE DIFFUSION MODELS FOR URBAN AREAS IS PRESENTED, FUTURE DEVELOPMENTS ARE INDICATED.

ENTRY NO. 740029

AVAILABLE FROM
IBM SCIENTIFIC CENTER. DORSODURO 3228, I-30122 VENEZIA, ITALY

INSTITUTION
CENTRO RICERCA IBM, VENEZIA, ITALY
MAX-PLANCK-INSTITUT FUER PLASMAPHYSIK, GARCHING BEI MUENCHEN

TITLE OF PAPER
NUMERICAL TREATMENT OF TIME DEPENDENT ADVECTION AND DIFFUSION OF AIR POLLUTANTS

LANGUAGE ENGLISH

REPORT NO. 33 NO. OF PAGES 020 DATE OF PUBLICATION 74-05-01

NUMBER OF AUTHORS 2 E. RUNCA F. SARDEI

DESCRIPTORS

1007 MODEL TYPE
3018 LOCAL
4073 FUNDAMENTAL (RESEARCH, DEVELOPMENT)
5010 DISPERSION PARAMETERS
8125 LINE SOURCE
8311 DISCONTINUOUS SOURCE
8516 WIND VARIANCE WITH HEIGHT

REMARKS/ABSTRACT
MIXED LAGRANGIAN EULERIAN FINITE-DIFFERENCE SCHEME TO STUDY TIME DEPENDENT ADVECTION AND DIFFUSION OF POLLUTANTS FOR VARIABLE EMISSION RATES, WIND VELOCITY AND DIFFUSION COEFFICIENTS. METHOD IS APPLIED TO HORIZONTAL ADVECTION-VERTICAL DIFFUSION TRANSPORT OF LINE SOURCE POLLUTANTS. NUMERICAL STEADY-STATE SOLUTIONS OBTAINED WITH DIFFERENT APPROX. OF GIVEN VELOCITY PROFILE COMPARED WITH CORRESP ANALYT SOLUT

ENTRY NO. 740031

AVAILABLE FROM
SEE INSTITUTION

INSTITUTION
BATTELLE PACIFIC NORTHWEST LABORATORIES
RICHLAND, WASHINGTON 99352 USA

TITLE OF PAPER
PRECIPITATION SCAVENGING: SOME PROBLEMS. APPROXIMATE SOLUTIONS AND SUGGESTIONS FOR FUTURE RESEARCH

LANGUAGE ENGLISH

REPORT NO. CONF-741003-3 NO. OF PAGES 024 DATE OF PUBLICATION 74-09-

NUMBER OF AUTHORS 1 W. SLINN

DESCRIPTORS

1007 MODEL TYPE
2062 PARTICLES
4073 FUNDAMENTAL (RESEARCH, DEVELOPMENT)
6211 SEDIMENTATION / FALL OUT

REMARKS/ABSTRACT
PROBLEMS IN STUDIES OF PRECIPITATION SCAVENGING OF ATMOSPHERIC PARTICLES ARE REVIEWED. DEFINITIONS OF TERMS AND MATHEMATICAL MODELS USED IN STUDIES OF PRECIPITATION SCAVENGING ARE DISCUSSED CRITICALLY

ENTRY NO. 740036

AVAILABLE FROM
SEE INSTITUTION

INSTITUTION
LAWRENCE LIVERMORE LABORATORY
P.O. BOX 808 LIVERMORE, CA. 94550 USA

TITLE OF PAPER
ONE-DIMENSIONAL NUMERICAL MODEL OF PRECIPITATION SCAVENGING WITH APPLICATION TO RAINOUT OF RADIOACTIVE DEBRIS

LANGUAGE ENGLISH

REPORT NO. UCRL-51627 (R.A.NO) NO. OF PAGES 038 DATE OF PUBLICATION 74-07-17

NUMBER OF AUTHORS 1 C. MOLENKAMP

DESCRIPTORS

1007 MODEL TYPE
2097 RADIOACTIVE COMPOUNDS
6220 WASH OUT

REMARKS/ABSTRACT
A TIME-DEPENDENT ENTRAINMENT MODEL OF CUMULUS CONVECTION MODIFIED TO INCLUDE CALCULATION OF PRECIPITATION SCAVENGING. PRIMARY METHOD OF SCAVENGING IS POSTULATED TO BE COLLECTION OF SUSPENDED DEBRIS IN CLOUD DROPLETS DURING CONDENSATION NUCLEATION & SUBSEQUENT INERTIAL CAPTURE OF THESE POLLUTED DROPLETS BY FALLING RAINDROPS. CALCULATIONS ARE DESCRIBED FOR SCAVENGING BY A TYPICAL CUMULUS CELL.

ENTRY NO. 740040

AVAILABLE FROM
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INSTITUTION
SMITH-SINGER METEOROLOGISTS, INC.
134 BROADWAY AMITYVILLE, NY. 11701 USA

TITLE OF PAPER
POLLUTANT DISPERSION FROM ALUMINUM REDUCTION PLANTS

LANGUAGE ENGLISH

REPORT NO.

NO. OF PAGES 018 DATE OF PUBLICATION 74-11-15

NUMBER OF AUTHORS 2

M. SMITH

S. SAMBOL

DESCRIPTORS

1007 MODEL TYPE
2054 FLUOR COMPOUNDS
3018 LOCAL
4073 FUNDAMENTAL (RESEARCH, DEVELOPMENT)
7102 OCCASIONAL VARIATION OF PARAMETERS

REMARKS/ABSTRACT
APPLICATION OF MODELING TECHNIQUES TO ALUMINUM REDUCTION PLANTS PROBLEMATIC BECAUSE OF SPECIALIZED ATTRIBUTES OF SOURCES. AL REDUCTION PLANTS CONSIST OF VARIETY OF LOW-LEVEL SOURCES & STACKS. STRENGTH & WEAKNESS EXAMINED OF MATH. MODELLING TECHNIQUE TO HYPOTHETICAL PLANT IN FLAT TERRAIN. SENSITIVITY OF PREDICTED CONCENTRATIONS TO CERTAIN THEORETICAL ASSUMPTION, ACCURACY OF WHICH IS CRITICAL TO MODELING.

ENTRY NO. 740041

AVAILABLE FROM
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INSTITUTION
GEOMET, INC.
50 MONROE STREET ROCKVILLE, MARYLAND 20850 USA

TITLE OF PAPER
MODEL VERIFICATION - AIRCRAFT EMISSIONS IMPACT ON AIR QUALITY

LANGUAGE ENGLISH

REPORT NO. EPA-650/4-74-049 NO. OF PAGES 500 DATE OF PUBLICATION 74-05-

NUMBER OF AUTHORS 4 S. THAYER D. PELTON

DESCRIPTORS

1007 MODEL TYPE
2020 CARBON MONOXIDE
2062 PARTICLES
3018 LOCAL
8125 LINE SOURCE
8133 AREA SOURCE
9113 MEAN VALUES
9121 MAXIMUM VALUES
9237 CHARACTERISTIC VALUES
10014 VALIDATION

REMARKS/ABSTRACT
GEOMET COMPLETED PROGRAM OF AIR QUALITY MEASUREMENT, MODEL DEVELOPMENT & MODEL VALIDATION AT WASHINGTON NATIONAL AIRPORT. A NEW MODEL DEVELOPED FROM NORTHERN RESEARCH & ENGINEERING CORP. MODEL. THE NREC MODEL WITH IMPROVEMENTS STILL UNDERPREDICTED. FURTHER IMPROVEMENTS LEAD TO THE MODIFIED GEOMET-MODEL, WHICH CONSISTENTLY PREDICTS NEAR MEAN & MEDIAN VALUES (FROM 16% UNDER- TO 36% OVERPREDICTION).

ENTRY NO. 740043

AVAILABLE FROM
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INSTITUTION
INSTITUT FUER METEOROLOGIE TECHNISCHE HOCHSCHULE DARMSTADT
HOCHSCHULSTR. 1 D-6100 DARMSTADT FED. REP OF GERMANY

TITLE OF PAPER
SCHADSTOFFAUSBREITUNG IM BEREICH EINER STRASSE
(DISPERSION OF AIR POLLUTANTS IN THE SURROUNDING OF A STREET)

LANGUAGE GERMAN

REPORT NO. NO. OF PAGES DATE OF PUBLICATION 74-02-

NUMBER OF AUTHORS 1 G. RAMPE

DESCRIPTORS

1007 MODEL TYPE
3018 LOCAL
4073 FUNDAMENTAL (RESEARCH, DEVELOPMENT)
5045 TOPOGRAPHY
8508 WIND VARIANCE IN SPACE

REMARKS/ABSTRACT
POLLUTANT DISPERSION IN SURRONDING OF AN OBSTACLE SITUATED LEEWARD OF A STREET. 2 NUMERICAL MODELS DEVELOPED USING MARKER-AND-CELL(MAC) METHOD. FIRST ONE YIELDS THE FLOW-FIELD BY NUMERICAL INTEGRATION OF NAVIER-STOKES-EQS. FOR GIVEN INITIAL AND BOUNDARY VALUES. IN THE SECOND ONE POLLUTANT DISPERSION IN THIS FLOW-FIELD CALCULATED BY NUMERICAL SOLUTIONS OF THE DIFFUSION EQUATION.

ENTRY NO. 750006

AVAILABLE FROM
U.S. ENVIRONM. PROTECT. AGENCY RES. TRIANGLE PARK, N.C. 27711

INSTITUTION
H.E. CRAMER COMPANY 540 ARAPEEN DRIVE, P.O.B. 8049
SALT LAKE CITY, UTAH 84108 USA

TITLE OF PAPER
DIFFUSION-MODEL CALCULATIONS OF LONG-TERM AND SHORT-TERM GROUND-LEVEL SO2-CONCENTRATIONS IN ALLEGHENY COUNTY, PENNSYLVANIA

LANGUAGE ENGLISH

REPORT NO. EPA/903/9-75/018 NO. OF PAGES 271 DATE OF PUBLICATION 75-03-

NUMBER OF AUTHORS 3 H. CRAMER H. GEARY

DESCRIPTORS

1007 MODEL TYPE
2011 SULFUR DIOXIDE
3034 REGIONAL
4057 IN ADDITION TO MEASUREMENTS
4073 FUNDAMENTAL (RESEARCH, DEVELOPMENT)
5045 TOPOGRAPHY
8222 STATIONARY SOURCE
8400 METEOROLOGICAL STATISTICS
8508 WIND VARIANCE IN SPACE
9121 MAXIMUM VALUES
9202 LONG TERM
10014 VALIDATION

REMARKS/ABSTRACT
DIFFUSION-MODEL CALCULATION OF MAX. 3-HOUR, 24-HOUR & AVERAGE ANNUAL IMMISSION DUE TO 107 STATIONARY SOURCES IN THE COUNTY. EMISSIONS DATA OF 1973 & PROJECTED ONES, METEOROLOGICAL DATA OF 1973 TO CALCULATE 1973 AVERAGE ANNUAL GROUND-LEVEL MAX. & 3-HOUR & 24-HOUR MAX. FOR 3 SELECTED 24-HOUR PERIODS, CLOSE AGREEMENT WITH MEASURED AIR QUALITY DATA, SMALL EFFECT OF TERRAIN ON TRAJECTORIES OF PLUME.

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INSTITUTION
LAWRENCE LIVERMORE LABORATORY
P.O. BOX 808 LIVERMORE, CA. 94550 USA

TITLE OF PAPER
ATMOSPHERIC RELEASE ADVISORY CAPABILITY (ARAC)

LANGUAGE ENGLISH

REPORT NO. UCRL-77200, REV. 1 NO. OF PAGES 029 DATE OF PUBLICATION 75-12-

NUMBER OF AUTHORS 2 M. DICKERSON R. ORPHAN

DESCRIPTORS

2097 RADIOACTIVE COMPOUNDS

REMARKS/ABSTRACT

ARAC IS A SERVICE SPONSORED BY ERDA FOR FACILITIES REQUIRING A MEANS OF REAL-TIME PREDICTION OF HEALTH HAZARDS FROM A RELEASE OF RADIONUCLIDES & OTHER TOXICS. SINCE 1973 JOINT FEASIBILITY STUDY IS CONDUCTED BY LLL AND SAVANNAH RIVER LABORATORY. PROTOTYPE COMPONENT OF THE SYSTEM HAS BEEN BUILT AND PLACED IN OPERATION. IMPLEMENTATION OF ARAC SERVICE FOR ERDA NUCLEAR FACILITIES PLANNED. ARAC CONCEPT.

57

ENTRY NO. 750010

AVAILABLE FROM
NAT.AER.& SPACE ADMIN. MARSH. SPACE FLIGHT CTR., ALABAMA 35812

INSTITUTION
H.E. CRAMER, INC. 430 ARAPEEN DRIVE, P.O.BOX 8049
SALT LAKE CITY, UTAH 84108 USA

TITLE OF PAPER
NASA/MSFC MULTILAYER DIFFUSION MODELS AND COMPUTER PROGRAMS-
VERSION 5

LANGUAGE ENGLISH

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NUMBER OF AUTHORS 2 R. DUMBAULD . BJORKLUND

DESCRIPTORS

1007 MODEL TYPE
3018 LOCAL
4073 FUNDAMENTAL (RESEARCH, DEVELOPMENT)
8117 POINT SOURCE
8125 LINE SOURCE
8214 MOBILE SOURCE
8311 DISCONTINUOUS SOURCE
8400 METEOROLOGICAL STATISTICS
12017 PROGRAM DESCRIPTION
12025 PROGRAM LISTING

REMARKS/ABSTRACT
UPDATED VERSION OF '73 NASA REPORT ON NASA/MSFC MULTILAYER DIFFUSION MODELS AND COMPUTER PROGRAMS FOR TOXIC FUEL HAZARDS, ENVIRONMENTAL IMPACT OF NORMAL AND ABNORMAL ROCKET LAUNCHES, CALCULATION OF SOURCE AND METEOROLOGICAL MODEL INPUT PARAMETERS TO TRANSPORT AND DIFFUSION MODEL, PREPROCESSOR PROGRAM TO CALCULATE MODEL INPUTS, VERSION 5 OF NASA/MSFC MULTILAYER DIFFUSION MODELS PROGRAM.

ENTRY NO. 750012

AVAILABLE FROM
SEE INSTITUTION

INSTITUTION
NORWEGIAN INSTITUTE FOR AIR RESEARCH
BOX 115 N-2007 KJELLER NORWAY

TITLE OF PAPER
A SIMPLE LAGRANGIAN DISPERSION MODEL APPLIED TO SULPHUR POLLUTION OVER EUROPE

LANGUAGE ENGLISH

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NUMBER OF AUTHORS 2 A. ELIASSEN J. SALTBONES

DESCRIPTORS

1007 MODEL TYPE
2011 SULFUR DIOXIDE
3042 LONG DISTANCE
4073 FUNDAMENTAL (RESEARCH, DEVELOPMENT)
6211 SEDIMENTATION / FALL OUT
9105 SHORT TERM
8508 WIND VARIANCE IN SPACE
9113 MEAN VALUES
10014 VALIDATION
10049 OTHERS

REMARKS/ABSTRACT

MODEL CALCULATIONS BASED ON AVAILABLE SO2-EMISSION DATA FOR EUROPE, AND WIND OBSERVATIONS IN THE 850 MB SURFACE. SPECIAL CASE REPORTED WHERE COMPUTED LARGE-SCALE SO2- AND SO4-PLUMES VERIFIED BY AIRCRAFT SAMPLING & OECD SAMPLING NETWORK. FOR STATIONS IN THIS NETWORK COMPUTED AND OBSERVED DAILY MEAN SO2- AND SO4-CONCENTRATIONS COMPARED DURING 6 MONTHS. SO2-DRY-DEPOSITION PATTERN FOR EUROPE CALCULATED.

ENTRY NO. 750014

AVAILABLE FROM
SEE INSTITUTION

INSTITUTION
DEPARTMENT OF ECOLOGY STATE OF WASHINGTON
OLYMPIA, WASHINGTON 98504 USA

TITLE OF PAPER
INDIRECT SOURCE REVIEW IN WASHINGTON STATE (PRESENTED AT ANNUAL CONFERENCE, PAC. NW INTERN. SEC., AIR POLLUT. CONT. ASSN. VANCOUVER 75)

LANGUAGE ENGLISH

REPORT NO. NO. OF PAGES 024 DATE OF PUBLICATION 75-11-

NUMBER OF AUTHORS 3 F. FENSKE J. PEARSON

DESCRIPTORS

1007 MODEL TYPE
12017 PROGRAM DESCRIPTION

REMARKS/ABSTRACT
INDIRECT SOURCE CONTROL MAINTAINED THROUGH SOURCE REVIEW PROCESS INCLUDING DATA ACQUISITION AND MODELING. STATE DEPARTMENT OF ECOLOGY'S COMPLEX SOURCE ATMOSPHERIC DIFFUSION MODEL, INCLUDING ITS FEATURES AND INTERACTIVE COMPUTER PROGRAM DISCUSSED. 24 INDIRECT SOURCES REVIEWED STATEWIDE, THEIR TYPE, SIZE, & OPERATING CONDITIONS, IMPOSED BY THE REVIEWING AGENCIES, TABULATED.

60

ENTRY NO. 750016

AVAILABLE FROM
KFA JUELICH GMBH POSTFACH 1913 D-5170 JUELICH F.R. GERMANY

INSTITUTION
DFVLR-INSTITUT FUER PHYSIK DER ATMOSPHAERE
D-8031 OBERPFAFFENHOFEN

TITLE OF PAPER
MESSUNG AN KUEHLTURMFAHNEN

LANGUAGE GERMAN

REPORT NO. JUEL-1250 (TEIL 3) NO. OF PAGES DATE OF PUBLICATION 75- -

NUMBER OF AUTHORS 1 H. FORTAK

DESCRIPTORS

1007 MODEL TYPE
2089 WATER VAPOUR
3019 LOCAL
3034 REGIONAL
5037 PLUME RISE
10049 OTHERS

REMARKS/ABSTRACT

AN EXTENDED FIELD EXPERIMENT IS DESCRIBED IN WHICH COOLING TOWER PLUMES WERE INVESTIGATED BY MEANS OF 3-DIMENSIONAL IN SITU MEASUREMENTS. THE GOAL OF THIS PROGRAM WAS TO OBTAIN INPUT DATA FOR NUMERICAL MODELS OF COOLING-TOWER PLUMES.

61

ENTRY NO. 750031

AVAILABLE FROM
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INSTITUTION
NATIONAL TECHNICAL INFORMATION SERVICE
5285 PORT ROYAL ROAD SPRINGFIELD, VA. 22161 USA

TITLE OF PAPER
ATMOSPHERIC MODELING OF AIR POLLUTION
(A BIBLIOGRAPHY WITH ABSTRACTS)

LANGUAGE ENGLISH

REPORT NO. NTIS/PS-75/476 NO. OF PAGES DATE OF PUBLICATION 75-06-

NUMBER OF AUTHORS 1 E. LEHMANN

DESCRIPTORS

1007 MODEL TYPE
3018 LOCAL
3026 URBAN
3034 REGIONAL
3042 LONG DISTANCE
4073 FUNDAMENTAL (RESEARCH, DEVELOPMENT)
6220 WASH OUT
8214 MOBILE SOURCE
8222 STATIONARY SOURCE
9202 LONG TERM

REMARKS/ABSTRACT
ALL ASPECTS OF LOWER ATMOSPHERIC MODELING OF AIR POLLUTION FROM BOTH MOBILE AND STATIONARY SOURCES ARE COVERED IN THIS BIBLIOGRAPHY OF FEDERALLY-FUNDED RESEARCH REPORTS. INCLUDED ARE MODELS CONCERNING LOCAL DIFFUSION, URBAN HEAT ISLANDS, PRECIPITATION WASHOUT, WORLD-WIDE DIFFUSION, CLIMATOLOGY, & SMOG. STRATOSPHERIC MODELING CONCERNING SUPERSONIC AIRCRAFT ARE EXCLUDED. (CONTAINS 140 ABSTRACTS).

ENTRY NO. 750035

AVAILABLE FROM
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INSTITUTION
TEXAS AIR CONTROL BOARD
8520 SHOAL CREEK BLVD. AUSTIN, TEXAS 78758 USA

TITLE OF PAPER
A COMPARISON OF OBSERVED AND PREDICTED PLUME RISE FOR THREE EAST TEXAS STACKS

LANGUAGE ENGLISH

REPORT NO. NO. OF PAGES DATE OF PUBLICATION 75-10-08

NUMBER OF AUTHORS 1 R. PORTER

DESCRIPTORS

5037 PLUME RISE
8117 POINT SOURCE
8222 STATIONARY SOURCE
8320 CONTINUOUS SOURCE
10014 VALIDATION
10049 OTHERS

REMARKS/ABSTRACT
ANALYSIS OF FIELD DATA GATHERED BY AIRCRAFT ON PLUME RISE FROM THE STACKS OF A LIGNITE FUELED POWER PLANT AND 2 PETROLEUM REFINERIES. ALL OBSERVED FIELD DATA ARE LISTED. BRIGGS PLUME RISE CALCULATIONS ARE COMPARED TO OBSERVED DATA. EFFECTS OF RAPIDLY CHANGING METEOROLOGICAL CONDITIONS ARE DISCUSSED. RECOMMENDATIONS ARE MADE FOR IMPROVED EXPERIMENTAL TECHNIQUES.

ENTRY NO. 750049

AVAILABLE FROM
U.S. ENERGY RES. & DEVELOPM. ADMIN., WASHINGTON, D.C. 20520

INSTITUTION
LAWRENCE LIVERMORE LABORATORY
P.O. BOX 808 LIVERMORE, CA. 94550 USA

TITLE OF PAPER
LIVERMORE REGIONAL AIR QUALITY MODEL (LIRAQ-1)

LANGUAGE ENGLISH

REPORT NO. UCRL-76198 NO. OF PAGES 025 DATE OF PUBLICATION 75-10-

NUMBER OF AUTHORS 2 M. MACCRACKEN K. GRANT

DESCRIPTORS

1007 MODEL TYPE
2100 INERT GASES
3034 REGIONAL
4073 FUNDAMENTAL (RESEARCH, DEVELOPMENT)
5045 TOPOGRAPHY
5070 MIXING HEIGHT / INVERSION HEIGHT
6106 CHEMICAL TRANSFORMATIONS
8508 WIND VARIANCE IN SPACE
10014 VALIDATION

REMARKS/ABSTRACT
EULERIAN GRID MODEL TO ASSESS AIR QUALITY IN REGIONS OF COMPLEX TERRAIN WITH TEMPORALLY AND SPATIALLY VARYING METEOROLOGY FOR SIMPLE CHEMICAL SYSTEMS OR INERT POLLUTANTS. CONSERVATION OF MASS EQUATION INTEGRATED VERTICALLY FROM SURFACE TO BASE OF INVERSION LAYER: TWO-DIMENSIONAL SINGLE LAYER MODEL WITH GRID STRUCTURE. GROUND POLLUTANT CONCENTRATION RELATED TO VERTICAL AVERAGE USING LOGARITHMIC PROFILE.

ENTRY NO. 750050

AVAILABLE FROM
AM.EL.POW.SERV.CORP. ENV.ENG.DIVI. P.O.B. 487, CANTON OH 44701

INSTITUTION
SMITH-SINGER METEOROLOGISTS, INC.
134 BROADWAY AMITYVILLE, NY 11701 USA

TITLE OF PAPER
AN ASSESSMENT OF THE POSSIBLE OCCURRENCE OF FUGITIVE COAL DUST AT THE SITE OF PROJECT 1301

LANGUAGE ENGLISH

REPORT NO. NO. OF PAGES 038 DATE OF PUBLICATION 75-10-07

NUMBER OF AUTHORS 1 J. MARTIN

DESCRIPTORS

1007 MODEL TYPE
2062 PARTICLES
3034 REGIONAL
4014 LICENSING PROCEDURE
5045 TOPOGRAPHY
5053 ROUGHNESS OF GROUND
10049 OTHERS

REMARKS/ABSTRACT
FIELD STUDIES AND CLIMATOLOGY INDICATE: FUGITIVE COAL DUST FROM COAL PILES OCCURS <4% OF TIME IN KANAWHA VALE REGION OF VIRGINIA & OHIO. STRONGEST PREVAILING WINDS SW, PROPER LOCATION OF PILES DOWNWIND OF POPULATION CENTERS DESIRABLE, TO MINIMIZE IMPACT OF DUST. THEORETICAL CALCULATIONS & WIND TUNNEL STUDIES SHOW: FUGITIVE DUST IMPACT NOT TO BE REDUCED BY LARGE WIND BREAKS (DYKES, TREES).

ENTRY NO. 750051

AVAILABLE FROM
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INSTITUTION
ISTITUTO RICERCHE 'G. DONEGANI'
I-NOVARA ITALY

TITLE OF PAPER
APPLICATION OF A THREEDIMENSIONAL DIFFUSION MODEL TO THE STUDY OF SO2-DISTRIBUTION IN THE VENICE AREA AND ITS VERIFICATION

LANGUAGE ENGLISH

REPORT NO. NO. OF PAGES 036 DATE OF PUBLICATION 75- -

NUMBER OF AUTHORS 4 G. MARZIANO A. SUTERA

DESCRIPTORS

1007 MODEL TYPE
2011 SULFUR DIOXIDE
3026 URBAN
4073 FUNDAMENTAL (RESEARCH, DEVELOPMENT)
7102 OCCASIONAL VARIATION OF PARAMETERS
10014 VALIDATION

REMARKS/ABSTRACT
SHIR & SHIEH'S MODEL APPLIED. RESULTS COMPARED WITH EXPERIMENTAL DATA. ATTEMPT TO ACCOUNT FOR UNCERTAINTIES IN INPUT DATA. THESE SEEM IN MOST CASES TO EXPLAIN LACK OF GOOD AGREEMENT BETWEEN COMPUTED AND MEASURED VALUES. APPARENTLY WITH WINTER DATA MODEL GIVES AS GOOD RESULTS IN VENICE AS SHIR & SHIEH OBTAINED IN ST. LOUIS, IF EQUALLY ACCURATE VALUES OF INPUT DATA SUPPLIED. MOST CRITICAL: WIND FIELD.

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INSTITUTION
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TITLE OF PAPER
A WIND TUNNEL STUDY OF AIR FLOW PATTERNS OVER COAL PILES NEAR THE AEP POWER PLANT, NEW HAVEN, WEST VIRGINIA

LANGUAGE ENGLISH

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NUMBER OF AUTHORS 1 T. MCLAREN

DESCRIPTORS

2062 PARTICLES
3018 LOCAL
4014 LICENSING PROCEDURE
5029 TURBULENCE CLASSES
8508 WIND VARIANCE IN SPACE
10049 OTHERS

REMARKS/ABSTRACT
WIND TUNNEL STUDY CARRIED OUT TO EXAMINE WIND SPEEDS AND TURBULENCE LEVELS NEAR SURFACE OF 3 COAL PILES AT THE AEP SITE IN NEW HAVEN. MEASUREMS. AT VARIOUS LOCATIONS NEAR EACH PILE, FOR 4 PROPOSED DYKE CONFIGURATIONS LOCATED NEAR PILE #1. FOR EACH DYKE CONFIGURATION MEASUREMENTS WERE MADE FOR 4 INCIDENT WIND DIRECTIONS, NAMELY, 80, 160, 260, AND 350 DEGREES. RESULTS OF THE STUDY

67

ENTRY NO. 750053

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INSTITUTION
GCA/TECHNOLOGY DIVISION GCA CORPORATION
BEDFORD, MASSACHUSETTS 01730 USA

TITLE OF PAPER
COMPREHENSIVE ANALYSIS OF TIME-CONCENTRATION RELATIONSHIPS AND THE VALIDATION OF A SINGLE-SOURCE DISPERSION MODEL

LANGUAGE ENGLISH

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NUMBER OF AUTHORS 2 M. MILLS F. RECORD

DESCRIPTORS

1007 MODEL TYPE
2011 SULFUR DIOXIDE
3018 LOCAL
4073 FUNDAMENTAL (RESEARCH, DEVELOPMENT)
5029 TURBULENCE CLASSES
8117 POINT SOURCE
8222 STATIONARY SOURCE
9105 SHORT TERM
9229 FREQUENCY DISTRIBUTIONS
10014 VALIDATION
10049 OTHERS

REMARKS/ABSTRACT
CONCENTRATION RELATIONSHIPS STUDIED WERE: PEAK 1-HOUR TO AVERAGE 3-H & PEAK 1-H TO AVERAGE 24-H CONCENTRATION RATIO DISTRIBUTIONS IN THE VICINITY OF POWER PLANT & THE EFFECT OF WIND SPEED, ATMOSPHERIC STABILITY, HOUR OF DAY, & PEAK 1-H CONCENTRATION ITSELF UPON STATISTICS OF THOSE DISTRIBUTIONS. VALIDATION OF EPA SINGLE-SOURCE MODEL SHOWED UNDERPREDICTION OF SO2-CONCENTRATIONS FOR ALL 4 RECEPTOR LOCATIONS.

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INSTITUTION
GCA/TECHNOLOGY DIVISION GCA CORPORATION
BEDFORD, MASSACHUSETTS 01730 USA

TITLE OF PAPER
MODEL VALIDATION AND TIME-CONCENTRATION ANALYSIS OF 3 POWER PLANTS

LANGUAGE ENGLISH

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NUMBER OF AUTHORS 2 M. MILLS R. STERN

DESCRIPTORS

1007 MODEL TYPE
2011 SULFUR DIOXIDE
3018 LOCAL
4073 FUNDAMENTAL (RESEARCH, DEVELOPMENT)
8117 POINT SOURCE
8222 STATIONARY SOURCE
9229 FREQUENCY DISTRIBUTIONS
10014 VALIDATION

REMARKS/ABSTRACT

ANALYSIS OF EPA SINGLE-SOURCE MODEL USING SO2-CONCENTRATION AND METEOROLOGICAL DATA OF VICINITY OF 3 OHIO POWER PLANTS. UPPER PERCENTILE OF FREQUENCY DISTRIBUTION OF 1-H & 3-H CONCENTRATIONS PREDICTED REASONABLY WELL. OTHERS SIGNIFICANTLY UNDERPREDICTED DUE TO ERRORS IN DETERMINATION OF BACKGROUND CONCENTRATIONS. ALSO INVESTIGATED: FREQUENCY DISTRIBUTIONS OF PEAK 1-H TO AV. 3-H & PEAK 1-H TO AV. 24H

ENTRY NO. 750058

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INSTITUTION
LAWRENCE LIVERMORE LABORATORY
P.O. BOX 808 LIVERMORE, CA. 94550 USA

TITLE OF PAPER
A MASS-CONSISTENT MODEL FOR WIND FIELDS OVER COMPLEX TERRAIN

LANGUAGE ENGLISH

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NUMBER OF AUTHORS 1 C. SHERMAN

DESCRIPTORS

1007 MODEL TYPE
3034 REGIONAL
8508 WIND VARIANCE IN SPACE

REMARKS/ABSTRACT

ADJUSTMENT MODEL TO PROVIDE POLLUT. TRANSPORT MODEL WITH INPUT WIND FIELDS WHICH ARE MASS-CONSISTENT, 3DIMENSIONAL & REPRESENT AVAILABLE METEOR. MEASUREMENTS. INTERPOLATED 3DIMENS. MEAN WINDS ADJUSTED TO SATISFY CONTINUITY EQ. WITHIN SPECIFIED VOLUME. UPPER & LATERAL BORDERS ABOVE TOPOGRAPHY ASSUMED TO BE OPEN AIR ALLOWING MASS FLOW. TOPOGRAPHIC ELEVATIONS DETERMINE BOTTOM BOUNDARY OF STUDIED AREA.

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AVAILABLE FROM
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INSTITUTION
IBM RESEARCH LABORATORY
SAN JOSE, CA. 95193 USA

TITLE OF PAPER
DEVELOPMENT OF AN URBAN AIR QUALITY SIMULATION MODEL WITH COMPATIBLE RAPS DATA: VOLUME I

LANGUAGE ENGLISH

REPORT NO. EPA-600/4-75-005A NO. OF PAGES DATE OF PUBLICATION 75-05-

NUMBER OF AUTHORS 2 C. SHIR L. SHIEH

DESCRIPTORS

1007 MODEL TYPE
3026 URBAN
4073 FUNDAMENTAL (RESEARCH, DEVELOPMENT)
8117 POINT SOURCE
8133 AREA SOURCE
12017 PROGRAM DESCRIPTION

REMARKS/ABSTRACT
EXISTING MODEL IBMAQ-1 DEVELOPED TO AN ADVANCED GENERAL. URBAN AIR QUALITY MODEL IBMQ-2 BASED ON NUM. INTEGRATION OF CONCENTRATION EQU. COMPUTES TEMPORAL & 3-DIMENSIONAL SPATIAL CONC. DISTRIBUTIONS DUE TO SPECIFIED URBAN POINT & AREA SOURCES BY USING NEDS & SIMULATED RAMS DATA. UTM COORDINATES USED IN ALL GEOGRAPHICAL, SOURCE EMISSION, & MONITORING DATA. TRAJECT. METH. TO INCORPORATE POINT SOURCES TO GRID

ENTRY NO. 750060

AVAILABLE FROM
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INSTITUTION
WALDEN RESEARCH DIVISION OF ABCOR, INC.
201 VASSAR STREET CAMBRIDGE, MA. 02139 USA

TITLE OF PAPER
IMPACT OF ENERGY SHORTAGE ON AMBIENT SULFUR DIOXIDE AND PARTICULATE LEVELS IN METROPOLITAN BOSTON AIR QUALITY CONTROL REGION

LANGUAGE ENGLISH

REPORT NO. EPA-450/3-75-068 NO. OF PAGES 212 DATE OF PUBLICATION 75-07-

NUMBER OF AUTHORS 5 R. SIEGEL P. GULDBERG

DESCRIPTORS

1007 MODEL TYPE
2011 SULFUR DIOXIDE
2062 PARTICLES
3034 REGIONAL
4030 CAUSE ANALYSIS
4073 FUNDAMENTAL (RESEARCH, DEVELOPMENT)
10049 OTHERS

REMARKS/ABSTRACT
COMBINED STATIST. ANALYSIS OF MEASURED AIR QUALITY DATA, REGULATORY & EMISSIONS ANALYSIS, & DIFFUSION MODELING WAS USED TO EVALUATE THIS IMPACT. CHANGES IN MEASURED SO2 & TSP LEVELS (01.70-03.74) INTERPRETED WITH REGARD TO SIP REGUL., VARIANCES GRANTED, & MET. CONDITIONS. QUARTERLY EMISSIONS INVENTORIES FOR SO2 & TSP IN BOSTON (1.73-6.74). ISOLATION OF EFFECTS OF DIFFERENT FACTORS ON IMPACT OF EN. SHORTAGE.

ENTRY NO. 750061

AVAILABLE FROM
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INSTITUTION
U.S. EPA OFFICE OF AIR QUALITY PLANNING AND STANDARDS
RESEARCH TRIANGLE PARK, N.C. 27711 USA

TITLE OF PAPER
GUIDELINES FOR AIR QUALITY MAINTENANCE PLANNING AND ANALYSIS
VOLUME 9: EVALUATING INDIRECT SOURCES

LANGUAGE ENGLISH

REPORT NO. EPA-450/4-75-001 NO. OF PAGES 509 DATE OF PUBLICATION 75-01-

NUMBER OF AUTHORS . NN .

DESCRIPTORS

1007 MODEL TYPE
2020 CARBON MONOXIDE
3018 LOCAL
8125 LINE SOURCE
9105 SHORT TERM

REMARKS/ABSTRACT

IN AIR QUALITY MAINTENANCE PLAN IT MAY BE DESIRABLE TO INCLUDE PROVISIONS FOR NEW SOURCE REVIEW. ONE TYPE OF NEW S. IS THE INDIRECT S. SCREENING PROCEDURE PRESENTED, USEFUL IN ASSESSING MAXIMUM IMPACT OF A PROPOSED INDIRECT SOURCE ON ROADSIDE CONCENTRATIONS. PROCEDURE INTENDED TO BE CONSERVATIVE: IF NO POTENTIAL PROBLEM IDENTIFIED, PROBABLY NONE WILL OCCUR. SUGGESTIONS TO ESTIMATE CONCENTRATIONS OF CO.

ENTRY NO. 750067

AVAILABLE FROM
SEE INSTITUTION

INSTITUTION
LANDESANSTALT FUER IMMISSIONSSCHUTZ DES LANDES NORDRHEIN-WESTFALEN
WALLNEYER STR. 6 D-4300 ESSEN 1 FED. REP. OF GERMANY

TITLE OF PAPER
BOXMODELL ZUR IMMISSIONSSIMULATION IN BALLUNGSRAEUMEN

LANGUAGE GERMAN

REPORT NO. IN: HEFT 34 SCHR.R. NO. OF PAGES 007 DATE OF PUBLICATION 75- -

NUMBER OF AUTHORS 1 J. GIEBEL

DESCRIPTORS

1023 BOX
2011 SULFUR DIOXIDE
3034 REGIONAL
4073 FUNDAMENTAL (RESEARCH, DEVELOPMENT)
5061 LOW WIND SPEED
5070 MIXING HEIGHT / INVERSION HEIGHT
6106 CHEMICAL TRANSFORMATIONS
8320 CONTINUOUS SOURCE
9105 SHORT TERM
10014 VALIDATION

REMARKS/ABSTRACT
BOX-MODEL TO SIMULATE AMBIENT POLLUTANT LOAD IN DENSELY POPULATED AREAS PRESENTED ESPECIALLY AT WIND SPEEDS LESS THAN 1 TO 2 M/S. AREA OF EMISSION & BORDERING ZONES DIVIDED INTO UNIT-VOLUMES WITH HEIGHT EQUAL TO UPPER LIMIT OF RESPECTIVE MIXING LAYER. HOMOGENEOUS MIXING WITHIN UNIT-VOLUMES. LOSS & CONVERSION RATES ALLOWING FOR POLLUTANT DECOMPOSITION. CONSERVING MASS TRANSPORT BETWEEN BOXES. VALIDATION.

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INSTITUTION
IBM RESEARCH LABORATORY
SAN JOSE, CA. 95193 USA

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LANGUAGE ENGLISH

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NUMBER OF AUTHORS 2 C. SHIR L. SHIEH

DESCRIPTORS

1007 MODEL TYPE
3026 URBAN
4073 FUNDAMENTAL (RESEARCH, DEVELOPMENT)
8117 POINT SOURCE
8133 AREA SOURCE
12017 PROGRAM DESCRIPTION
12025 PROGRAM LISTING

REMARKS/ABSTRACT
PROGRAM LISTING OF THE MODEL PRESENTED IN VOLUME I (ENTRY-NO.750059)

75

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INSTITUTION
LABORATORIO PROVINCIALE DI IGIENE E PROFILASSI AND
OSSERVATORIO METEOROLOGICO DI BRERA

TITLE OF PAPER
APPLICATIONS OF MATHEMATICAL MODELS IN POLLUTION NETWORK PLANNING
AND AIR QUALITY CONTROL

LANGUAGE ENGLISH

REPORT NO. NO. OF PAGES DATE OF PUBLICATION 76- -

NUMBER OF AUTHORS 4 A. CAVALLARO R. GUALDI

DESCRIPTORS

3026 URBAN
4049 SCHEDULING OF MEASUREMENTS
4057 IN ADDITION TO MEASUREMENTS
11100 ADVANTAGES

REMARKS/ABSTRACT

SUMS UP EXPERIMENTS AND RESULTS OF RESEARCH IN AIR POLLUTION CONTROL & PREVENTION IN PROVINCE OF MILAN. PLANNING AND BUILDING-UP OF A NETWORK OF CHEMICAL AND METEOROLOGICAL SENSORS LINKED TO A CENTRAL COMPUTER. MODEL CHECKS NETWORK RELIABILITY & COLLECTED VALUES. DIFFUSION MODEL DEVELOPED TO SIMULATE MILAN ATMOSPHERE DYNAMICS. AS A TEST: EFFECT OF INSTALLATIONS IN BASIC ZONES CALC. AFTER INVENTORIES

ENTRY NO. 760003

AVAILABLE FROM
SEE INSTITUTION

INSTITUTION
PROVINCIA DI MILANO, LABORATORIO PROVINCIALE DI IGIENE E PROFILASSI
MILANO ITALY

TITLE OF PAPER
EXPERIENCES ABOUT AIR QUALITY CONTROL
IN PROVINCE OF MILAN

LANGUAGE ENGLISH

REPORT NO. NO. OF PAGES DATE OF PUBLICATION 76- -

NUMBER OF AUTHORS 3 A. CAVALLARO R. GUALDI

DESCRIPTORS

1007 MODEL TYPE
3026 URBAN
4049 SCHEDULING OF MEASUREMENTS
4057 IN ADDITION TO MEASUREMENTS
9202 LONG TERM
10049 OTHERS

REMARKS/ABSTRACT

EXPERIENCES OF 5 YEARS OF AIR POLLUTION CONTROL IN MILAN PROVINCE. DEVELOPMENT OF MONITORING NETWORK AND ANALYSIS OF COLLECTED DATA DESCRIBED. APPLYING A MATHEMATICAL MODEL VALIDITY OF NETWORK AND RELIABILITY OF SAMPLING SITES CHECKED. CORRELATION ANALYSIS AMONG WHOLE SET OF DATA, CHEMICAL AND METEOROLOGICAL, PERFORMED TO OBTAIN A STATISTICAL MODEL FOR CLIMATOLOGICAL EVALUATIONS.

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INSTITUTION
DANISH METEOROLOGICAL INSTITUTE AIR POLLUTION SECTION
LYNGBYVEJ 100 DK-2100 COPENHAGEN DENMARK

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A PSEUDOSPECTRAL MODEL FOR DISPERSION OF ATMOSPHERIC POLLUTANTS
I.: NUMERICAL TESTS

LANGUAGE ENGLISH

REPORT NO. NO. OF PAGES DATE OF PUBLICATION 76- -

NUMBER OF AUTHORS 2 O. CHRISTENSEN L. PRAHM

DESCRIPTORS

1007 MODEL TYPE
3026 URBAN
4073 FUNDAMENTAL (RESEARCH, DEVELOPMENT)

REMARKS/ABSTRACT
TO DESCRIBE DISPERSION OF POLLUTANTS IN GASES AND FLUIDS AN EULERIAN MODEL DEVELOPED, BASED ON NUMERICAL INTEGRATION OF DISPERSION EQUATION INCLUDING ADVECTION, DIFFUSION, SINKS, AND MULTIPLE SOURCES. PSEUDOSPECTRAL METHOD EMPLOYED FOR NUMERICAL INTEGRATION OF THE DISPERSION EQUATION. MODEL IS NOT LIMITED TO PHYSICAL PROBLEMS WITH PERIODIC BOUNDARY CONDITIONS, AS IMPOSED BY THE SPECTRAL TECHNIQUE.

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INSTITUTION
CENTRO TEORIA DEI SISTEMI C.N.R. AND ENEL
MILANO, ITALY

TITLE OF PAPER
ON THE DETERMINATION OF THE D.A.P. DISTRIBUTION (IN: PROCEEDINGS OF XIV INTERNAT. CONF. ON AUTOMATION & INSTRUMENTATION, MILAN, NOV.'76)

LANGUAGE ENGLISH

REPORT NO. NO. OF PAGES DATE OF PUBLICATION 76- -

NUMBER OF AUTHORS 2 G. FINZI G. FRONZA

DESCRIPTORS

1007 MODEL TYPE
2011 SULFUR DIOXIDE
3034 REGIONAL
9202 LONG TERM
9229 FREQUENCY DISTRIBUTIONS
4073 FUNDAMENTAL (RESEARCH, DEVELOPMENT)

REMARKS/ABSTRACT
DOSAGE AREA PRODUCT (DAP) TAKEN AS SIGNIFICANT INDEX OF GLOBAL POLLUTION OVER A REGION/ PROBLEM TO ESTIMATE DAP FROM POINT MEASUREMTS. SUPPLIED BY SO2-MONITORING NETWORK IN THE PO VALLEY SOLVED/ ESTIMATED DAP TIME SERIES CONSIDERED AS PARTIAL REALIZATION OF A STATIONARY STOCHASTIC PROCESS/ IT IS SHOWN THAT THE DISTRIBUTION OF SUCH PROCESS CAN BE REGARDED AS LOGNORMAL/

ENTRY NO. 760007

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SEE INSTITUTION

INSTITUTION
CENTRO TEORIA DEI SISTEMI, C.N.R. MILANO AND ENEL
MILANO, ITALY

TITLE OF PAPER
STOCHASTIC MODELS AND FORECAST FOR AIR POLLUTION CONTROL PROBLEMS
(PROC. XIV INT. CONF. ON AUTOMAT. AND INSTRUMENT., MILAN, NOV. 1976)

LANGUAGE ENGLISH

REPORT NO. NO. OF PAGES DATE OF PUBLICATION 76- -

NUMBER OF AUTHORS 2 G. FINZI G. FRONZA

DESCRIPTORS

1007 MODEL TYPE
3034 REGIONAL
9113 MEAN VALUES
9121 MAXIMUM VALUES
9202 LONG TERM
4073 FUNDAMENTAL (RESEARCH, DEVELOPMENT)

REMARKS/ABSTRACT
STOCHASTIC APPROACH TO AIR POLLUT. PROBLEMS REVIEWED/ KNOWN STUDIES ON AVERAGE OR PEAK CONCENTRATION DISTRIBUTIONS DESCRIBED/ STOCHASTIC MODELS, BASED ON STANDARD TIME SERIES ANALYSIS, SUCH AS ARIMA OR SEASONAL ARIMA PROCESSES ILLUSTRATED/ FINALLY, MOST COMMON USES OF SUCH MODELS, NAMELY STANDARD VERIFICATION & MAINLY REAL TIME FORECAST VIA KALMAN FILTERING TECHNIQUES, ARE SHOWN.

ENTRY NO. 760008

AVAILABLE FROM
CENTRO TEORIA DEI SISTEMI C.N.R. & ENEL, MILANO, ITALY

INSTITUTION
ISTITUTO DI ELETTROTECNICA ED ELETTRONICA POLITECNICO DI MILANO
MILANO, ITALY

TITLE OF PAPER
STOCHASTIC MODELS AND FORECAST OF THE DOSAGE AREA PRODUCT (DAP)
(INTERNAL REPORT LCA 76-3)

LANGUAGE ENGLISH

REPORT NO. LCA 76-3 NO. OF PAGES DATE OF PUBLICATION 76-07-

NUMBER OF AUTHORS 3 G. FINZI G. FRONZA

DESCRIPTORS

1007 MODEL TYPE
3034 REGIONAL
4073 FUNDAMENTAL (RESEARCH, DEVELOPMENT)
9105 SHORT TERM

REMARKS/ABSTRACT

A STOCHASTIC MODEL OF THE DAILY DAP IN WINTER IS ILLUSTRATED. THIS ALLOWS TO DETERMINE A ONE STEP PREDICTOR ALLOWING TO FORECAST TOMORROW'S DAP FROM DATA UP TO TODAY. FINALLY, IN ORDER TO IMPROVE THE QUALITY OF PREDICTION, A SLIGHTLY MORE REFINED MODEL IS CONSIDERED, WHERE A GROSS INFORMATION ABOUT METEOROLOGY IS INTRODUCED.

ENTRY NO. 760009

AVAILABLE FROM
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INSTITUTION
FEEMAS - AIR QUALITY WORKING GROUP

TITLE OF PAPER
MATHEMATICAL MODEL FOR URBAN DIFFUSION OF CARBON MONOXIDE FROM MOTOR VEHICLES

LANGUAGE ENGLISH

REPORT NO. NO. OF PAGES DATE OF PUBLICATION 76-07-

NUMBER OF AUTHORS 1 P. GADDO

DESCRIPTORS

1007 MODEL TYPE
2020 CARBON MONOXIDE
3026 URBAN
4073 FUNDAMENTAL (RESEARCH DEVELOPMENT)
8214 MOBILE SOURCE
9237 CHARACTERISTIC VALUES
10014 VALIDATION
11100 ADVANTAGES

COMMENTS/ABSTRACT
PREDICTING AIR QUALITY CHNGES DUE TO MEASURES TO CONTROL AUTOMOTIVE EMISSIONS. CO-DIFFUSION I TLAIN MODELED WHERE EXTENDED MONITORING NETWORK. MODEL INPUT (HOURLY TRAFFIC DISTRIBUTION AND COMPOSITION, EMISSION FACTORS, METEOR. PARAMETERS) OBTAINED BY SURVEY & EXPERIMENTS. OUTPUT COMPARED WITH CO-LEVELS OBSERVED WITH FIAT NETWORK. THEN MODEL APPLIED ASSUMING ESTABLISHMENT OF PEDESTRIANIZED AREA.

ENTRY NO. 760010

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INSTITUT FUER METEOROLOGIE TECHNISCHE HOCHSCHULE DARMSTADT
HOCHSCHULSTR. 1 D-6100 DARMSTADT FED. REP. OF GERMANY

TITLE OF PAPER
INTERREGIONALER TRANSPORT VON LUFTVERUNREINIGUNGEN

LANGUAGE GERMAN

REPORT NO. NO. OF PAGES 193 DATE OF PUBLICATION 76-03-

NUMBER OF AUTHORS K W. KLUG . HERRMANN

DESCRIPTORS

1007 MODEL TYPE
3042 LONG DISTANCE
9105 SHORT TERM

REMARKS/ABSTRACT
FRONTIER-CROSSING TRANSPORT OF AIR POLLUTANTS. METEOROLOGICAL CONDITIONS, UNDER WHICH SUCH TRANSPORTS OCCUR, ARE SELECTED AND CLASSIFIED. POSSIBILITIES OF DESCRIBING THESE TRANSPORT PROCESSES WITH THE HELP OF INTERREGIONAL-SCALE MODELS IS DISCUSSED. UNTIL DETAILED EMISSION INVENTORIES ARE AVAILABLE, A NECESSARY PRESUPPOSITION FOR APPLICATION OF SUCH MODELS, STATISTICAL TECHNIQUES ARE BEING APPLIED

ENTRY NO. 760013

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INSTITUTION
INSTITUT FUER METEOROLOGIE TECHNISCHE HOCHSCHULE DARMSTADT
HOCHSCHULSTR. 1 D-6100 DARMSTADT FED. REP. OF GERMANY

TITLE OF PAPER
TURBULENTE DIFFUSION IN EINER ATMOSPHAERISCHEN GRENZSCHICHT MIT ROSSBY-ZAHL-AEHNLICHKEIT

LANGUAGE GERMAN

REPORT NO. NO. OF PAGES DATE OF PUBLICATION 76- -

NUMBER OF AUTHORS 1 H. KURZ

DESCRIPTORS

1007 MODEL TYPE
3042 LONG DISTANCE
4073 FUNDAMENTAL (RESEARCH, DEVELOPMENT)
8516 WIND VARIANCE WITH HEIGHT

REMARKS/ABSTRACT

PROBLEM OF TURBULENT DIFFUSION OF AIR POLLUTANTS IN A STATIONARY AND HORIZONTALLY HOMOGENEOUS PLANETARY BOUNDARY LAYER TREATED BY NUMERICAL INTEGRATION OF 3-DIMENSIONAL DISPERSION EQU. WITH GRADIENT-ANSATZ FOR TEMPORALLY AVERAGED FLUXES. FOR ADVECTION TERM BOTH HORIZONTAL COMPONENTS OF WIND TAKEN INTO CONSIDERATION ALLOWING FOR VERTICAL VARIATIONS OF AMOUNT AND DIRECTION.

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LAWRENCE LIVERMORE LABORATORY
P.O. BOX 808 LIVERMORE, CALIFORNIA 94550 USA

TITLE OF PAPER
ADPIC: A 3-DIMENSIONAL COMPUTER CODE FOR THE STUDY OF POLLUTANT DISPERSAL AND DEPOSITION UNDER COMPLEX CONDITIONS

LANGUAGE ENGLISH

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NUMBER OF AUTHORS 1 R. LANGE

DESCRIPTORS

1007 MODEL TYPE
2097 RADIOACTIVE COMPOUNDS
2100 INERT GASES
3034 REGIONAL
4073 FUNDAMENTAL (RESEARCH, DEVELOPMENT)
5010 DISPERSION PARAMETERS
5045 TOPOGRAPHY
5061 LOW WIND SPEED
6211 SEDIMENTATION / FALL OUT
6220 WASH OUT
8311 DISCONTINUOUS SOURCE
8320 CONTINUOUS SOURCE
8508 WIND VARIANCE IN SPACE

REMARKS/ABSTRACT
FULLY 3-DIMENSIONAL CARTESIAN PARTICLE-DIFFUSION APPROACH AND COMPUTER CODE, CAPABLE OF CALCULATING TIME-DEPENDENT DISPERSION OF INERT OR RADIOACTIVE AIR POLLUTANTS UNDER MANY CONDITIONS: TOPOGRAPHY, WET AND DRY DEPOSITION, STRATIFIED SHEAR FLOW, CALMS, FOR INDIVIDUAL OR MULTIPLE INSTANTANEOUS OR CONTINUOUS SOURCES AND SPACE- AND TIME-VARIABLE DIFFUSION PARAMETERS. LAGRANGIAN PARTICLES IN EULERIAN GRID.

ENTRY NO. 760017

AVAILABLE FROM
IBM SCIENTIFIC CENTER, DORSODURO 3228, I-30122 VENEZIA, ITALY

INSTITUTION
IBM SCIENTIFIC CENTER, VENICE, ITALY
7TH INT. TECHN. MEET. ON AIR POLL. MODEL. ... AIRLIE, VA. 7.-10.9.76

TITLE OF PAPER
AN EFFICIENT AIR QUALITY K-MODEL

LANGUAGE ENGLISH

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NUMBER OF AUTHORS 1 E. RUNCA

DESCRIPTORS

1007 MODEL TYPE
3018 LOCAL
4073 FUNDAMENTAL (RESEARCH, DEVELOPMENT)
5010 DISPERSION PARAMETERS
5070 MIXING HEIGHT / INVERSION HEIGHT
7200 SYSTEMATICAL VARIATION OF PARAMETERS
8125 LINE SOURCE
8508 WIND VARIANCE IN SPACE

REMARKS/ABSTRACT

NUMERICAL INTEGRATION OF 3-DIMENSIONAL CONVECTION-DIFFUSION EQUATION (K-THEORY). FINITE DIFFERENCE SCHEME BASED ON METHOD OF FRACTIONAL STEPS. CONVECTION & DIFFUSION STEPS TREATED WITH CARLSON'S & CRANK-NICHOLSON'S SCHEME, RESPECTIVELY. NUMER. INVESTIGATION ON HORIZONTAL ADVECTION & VERTICAL DIFFUSION DOWNWIND FROM A LINE SOURCE PROVED PROPOSED SCHEME MORE ACCURATE THAN OTHER DIFFERENCE SCHEMES.

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AVAILABLE FROM
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INSTITUTION
IBM SCIENTIFIC CENTER
DORSODURO 3228 I-30122 VENEZIA ITALY

TITLE OF PAPER
FINITE DIFFERENCE AND MIXED EULERIAN-LAGRANGIAN SCHEMES FOR SOLVING TIME DEPENDENT PROBLEMS OF AIR POLLUTION ADVECTION AND DIFFUSION

LANGUAGE ENGLISH

REPORT NO. NO. OF PAGES 018 DATE OF PUBLICATION 76-11-23

NUMBER OF AUTHORS 1 E. RUNCA

DESCRIPTORS

1007 MODEL TYPE
3018 LOCAL
4073 FUNDAMENTAL (RESEARCH, DEVELOPMENT)
8125 LINE SOURCE
9105 SHORT TERM

REMARKS/ABSTRACT

STUDY FOCUSSED ON 2-DIMENSIONAL CASE OF CONVECTION-DIFFUSION EQ. DESCRIBING POLLUTANT DIFFUSION DOWNWIND FROM LINE SOURCE. FINITE DIFFERENCE AND EULERIAN-LAGRANGIAN SCHEMES APPLIED TO AIR POLLUTANT ADVECTION AND DIFFUSION PROBLEMS HAVE BEEN DESCRIBED FOR 2- AND 3-DIMENSIONAL TIME DEPENDENT PROBLEMS. FRACTIONAL STEP PROCEDURE SHOWN TO ALLOW A MORE ACCURATE NUM. DISCRETIZATION OF ATMOS. DIFFUSION EQ.

ENTRY NO. 760030

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TITLE OF PAPER
EINE EMPIRISCHE AUSBREITUNGSGLEICHUNG ZUR IMMISSIONSSIMULATION IM UNMITTELBAREN NAHBEREICH VON EMISSIONSQUELLEN

LANGUAGE GERMAN

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NUMBER OF AUTHORS 1 J. GIEBEL

DESCRIPTORS

1066 STATISTICAL
2038 NITROGEN OXIDES
2100 INERT GASES
3018 LOCAL
4073 FUNDAMENTAL (RESEARCH, DEVELOPMENT)
8117 POINT SOURCE
8222 STATIONARY SOURCE
8320 CONTINUOUS SOURCE
9105 SHORT TERM
11100 ADVANTAGES

REMARKS/ABSTRACT
DISPERSION FORMULA DEVELOPED FOR IMMEDIATE VICINITY OF EMISSION, BASED UPON EMISSION & AMBIENT CONCENTRATION SAMPLING IN 20 TO 50 M DISTANCE FROM SOURCE (HEIGHT 9,5 M). ALLOWS SIMULATION OF MAX. CONCENTRATIONS AVERAGED OVER 20 MIN INTERVALS, THAT IMPINGE ON OBJECTS PROJECTING INTO PLUME. COMPARISON WITH GAUSS FORMULA USING MCELROY & POOLER PARAMETERS FOR SOURCES IN CITY AREAS SHOWED GOOD AGREEMENT.

ENTRY NO. 760035

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INSTITUTION
MAX-PLANCK-INSTITUT FUER PLASMAPHYSIK GARCHING BEI MUENCHEN, GERM.
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TITLE OF PAPER
AN EFFICIENT NUMERICAL SCHEME FOR SOLVING TIME DEPENDENT PROBLEMS OF AIR POLLUTION ADVECTION AND DIFFUSION

LANGUAGE ENGLISH

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NUMBER OF AUTHORS 2 F. SARDEI E. RUNCA

DESCRIPTORS

1007 MODEL TYPE
3018 LOCAL
4073 FUNDAMENTAL (RESEARCH, DEVELOPMENT)
8125 LINE SOURCE
9121 MAXIMUM VALUES
11100 ADVANTAGES

REMARKS/ABSTRACT

FRACTIONAL STEP NUMER. SCHEME PROPOSED TO SOLVE 2-DIMENSION. EQ. DESCRIBING HORIZONTAL ADVECTION &VERTICAL DIFFUSION DOWNWIND FROM A LINE SOURCE. ADVECTION TREATED WITH CARLSON'S, DIFFUSION WITH CRANK-NICHOLSON'S SCHEME. THIS ALGORITHM OF 1ST ORDER ACCURACY, IN FACT, HOWEVER, MORE ACCURATE THAN 4 OTHER DIFFERENCE SCHEMES OF 1ST & 2ND ORDER, TO WHICH IT IS COMPARED. REASONS OF HIGH RESOLUTION EXPLAINED

ENTRY NO. 760037
REVISED

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INSTITUTION
U.S. EPA OFFICE OF RES.&DEVELOPM. ENVIRONM.SCIENCES RESEARCH LAB
RESEARCH TRIANGLE PARK, N.C. 27711 USA

TITLE OF PAPER
CONT.RES.IN MESOSC.AIR POLLUT.SIMUL.MODELG.:VOL.I ASSESSMENT OF PRIOR MODEL EVALUAT.STUDIES & ANALYSIS OF MODEL VALIDITY & SENSITIVITY

LANGUAGE ENGLISH

REPORT NO. EPA 600/4-76-016 A NO. OF PAGES 250 DATE OF PUBLICATION 76-05-

NUMBER OF AUTHORS 4 M. LIU D. WHITNEY

DESCRIPTORS

1031 GRID
1040 LAGRANGIAN
2020 CARBON MONOXIDE
2038 NITROGEN OXIDES
2070 OXIDANTS
3026 URBAN
4073 FUNDAMENTAL (RESEARCH, DEVELOPMENT)
5010 DISPERSION PARAMETERS
5070 MIXING HEIGHT / INVERSION HEIGHT
6106 CHEMICAL TRANSFORMATIONS
6203 PHYSICAL TRANSFORMATIONS
7200 SYSTEMATICAL VARIATION OF PARAMETERS
8508 WIND VARIANCE IN SPACE
10014 VALIDATION
11002 QUALIFICATIONS

REMARKS/ABSTRACT

SERIES OF STUDIES TO EVALUATE 3 'FIRST GENERATION' PHOTOCHEMICAL AIR POLLUTION MODELS TO DETERMINE MODIFICATIONS OR EXTENSIONS NEEDED IN DEVELOPING 'SECOND GENERATION' MODEL. MODELS STUDIED OF TRAJECTORY & GRID TYPE, NOT CAPABLE TO CONSISTENTLY SIMULATE MEASURED CONCENTRATIONS DUE TO INADEQUACY OF MODELS & INAPPROPRIATENESS OF DATA BASE. SAI MODEL TO ASSESS SENSITIVITY OF PHOTOCHEM. AIR POLLUTION LEVELS.

ENTRY NO. 760038
NEW

AVAILABLE FROM

INSTITUTION
ENVIRONM. SCIENCES RESEARCH LAB. U.S.ENVIRONM.PROTECTION AGENCY
RESEARCH TRIANGLE PARK, NORTH CAROLINA 27711 U.S.A.

TITLE OF PAPER
URBAN AIR POLLUTION MODELING WITHOUT COMPUTERS

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NUMBER OF AUTHORS 1 M. BENARIE

DESCRIPTORS

1023 BOX
1104 OTHER
2011 SULFUR DIOXIDE
2020 CARBON MONOXIDE
2062 PARTICLES
3026 URBAN
4073 FUNDAMENTAL (RESEARCH, DEVELOPMENT)
8419 1-DIMENSIONAL METEOROLOGICAL STATISTICS
9113 MEAN VALUES
9229 FREQUENCY DISTRIBUTIONS
10014 VALIDATION
11207 LIMITS OF APPLICABILITY

REMARKS/ABSTRACT
CONDENSED VERSION OF SELECTED TOPICS FROM A RECENT MONOGRAPH BY THE AUTHOR. SIMPLE, EFFICIENT MODELS UNDER MANY CIRCUMSTANCES PREFERABLE TO COMPLEX ONES WITH REGARD TO COMPUTERS. LIMITS SET BY ATMOSPHERIC PREDICTABILITY. REAL TIME FORECASTING POLLUTION CONCENTRATES. SIMPLE BOX MODEL. FREQUENCY DISTRIBUTION OF CONCENTRATES. INCL. LOG-NORMAL DISTRIBUTION. AVERAGING-TIME ANALYSIS. WIND SPEED & CONCENTRATION.

ENTRY NO. 770001

AVAILABLE FROM
IBM SCIENTIFIC CENTER, DORSODURO 3228, I-30122 VENEZIA, ITALY

INSTITUTION
CENTRO TEORIA DEI SISTEMI C.N.R., MILANO
CENTRO SCIENTIFICO IBM, VENEZIA

TITLE OF PAPER
MODELING AND FORECAST OF THE DOSAGE POPULATION PRODUCT IN VENICE
(PROC. OF IFAC SYMPOSIUM ON ENVIR. SYST. PLANNING ETC.-KYOTO AUG.77)

LANGUAGE ENGLISH

REPORT NO. NO. OF PAGES 005 DATE OF PUBLICATION 77-08-01

NUMBER OF AUTHORS 4 G. FINZI G. FRONZA

DESCRIPTORS

1007 MODEL TYPE
3026 URBAN
4073 FUNDAMENTAL (RESEARCH, DEVELOPMENT)
9105 SHORT TERM

ABSTRACT

DPP, AN INDEX MEASURING THE POLLUTION DAMAGE ON THE INDIVIDUALS IS DEFINED AND ESTIMATED FROM VENICE CONCENTRATION AND POPULATION DATA. 9 DIFFERENT STOCHASTIC MODELS OF DPP ARE SET UP AND PERFORMANCES OF CORRESPONDING PREDICTORS ARE COMPARED. IN PARTICULAR, AN IMPROVEMENT IN FORECAST QUALITY IS OBTAINED THROUGH INTRODUCING METEOROLOGICAL INFORMATION, MAINLY WIND DIRECTION.

ENTRY NO. 770002

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INSTITUTION
CENTRO TEORIA DEI SYSTEMI CNR, MILANO
IBM SCIENTIFIC CENTER, DORSODURO 3228 I-30122 VENEZIA ITALY

TITLE OF PAPER
TIME SERIES ANALYSIS OF VENICE AIR QUALITY DATA
(PROC. IFAC SYMPOS. ENVIR. SYSTEMS PLANN., DESIGN & CONTROL, KYOTO)

LANGUAGE ENGLISH

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NUMBER OF AUTHORS 4 P. ZANNETTI G. FINZI

DESCRIPTORS

1007 MODEL TYPE
2011 SULFUR DIOXIDE
3034 REGIONAL
4073 FUNDAMENTAL (RESEARCH, DEVELOPMENT)
9105 SHORT TERM
10014 VALIDATION

REMARKS/ABSTRACT
HOURLY SO2 CONCENTRATION TIME SERIES IN DIFFERENT SEASONS & IN DIFFERENT MONITORING STATIONS OF VENETIAN LAGOON CONSIDERED & DESCRIBED WITH VARIOUS TYPES OF STOCHASTIC MODELS SUCH AS ARIMA & CYCLOSTATIONARY PROCESSES. FORECAST QUALITY OF CORRESPONDING PREDICTORS IS ALSO ILLUSTRATED. IN PARTICULAR IT IS SHOWN THAT AN IMPROVEMENT IN PREDICTION CAN BE OBTAINED BY APPLYING TO ADAPTIVE MODELS.

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BONNENBERG+DRESCHER INGENIEURGESELLSCHAFT MBH+CO.KG
INDUSTRIESTRASSE D-5173 ALDENHOVEN/JUELICH FED. REP. OF GERMANY

TITLE OF PAPER
DIE GRENZEN EINER VERWENDUNG DER HYDROSTATISCHEN APPROXIMATION IN MESO-SKALIGEN SIMULATIONSMODELLEN

LANGUAGE GERMAN

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NUMBER OF AUTHORS 1 F. WIPPERMANN

DESCRIPTORS

1104 OTHER
3034 REGIONAL
4073 FUNDAMENTAL (RESEARCH, DEVELOPMENT)
11207 LIMITS OF APPLICABILITY

REMARKS/ABSTRACT
MOST CONSIDERABLE DEVIATIONS FROM THE BASIC HYDROSTATIC DUE TO THERMAL CONVECTION. FURTHER EFFECT BEING OF IMPORTANCE: VERTICAL ACCELERATIONS DUE TO OROGRAPHY. ALL OTHER TERMS UNIMPORTANT - AT LEAST IN STEADY STATE MODEL. TO CONCEIVE SIMULATION MODEL FOR THE UPPER RHINE VALLEY OROGRAPHIC EFFECTS UNCRITICAL, BUT STRONG INDUSTRIAL HEAT SOURCES NECESSITATE A NON-HYDROSTATIC MODEL. DISPERSION OF HEAT.

ENTRY NO. 770004

AVAILABLE FROM
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INSTITUTION
LANDESANSTALT FUER IMMISSIONSSCHUTZ DES LANDES NORDRHEIN-WESTFALEN
WALLNEYER STR. 6 D-4300 ESSEN 1 FED. REP. OF GERMANY

TITLE OF PAPER
UNTERSUCHUNGEN ZUR ABBAURATE VON SCHWEFELDIOXID IN DER ATMOSPHAERE

LANGUAGE GERMAN

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NUMBER OF AUTHORS 1 J. GIEBEL

DESCRIPTORS

1104 OTHER
2011 SULFUR DIOXIDE
3034 REGIONAL
4073 FUNDAMENTAL (RESEARCH, DEVELOPMENT)
5070 MIXING HEIGHT / INVERSION HEIGHT
6106 CHEMICAL TRANSFORMATIONS
6211 SEDIMENTATION / FALL OUT
6220 WASH OUT
6238 ADSORPTION

REMARKS/ABSTRACT
SO2 REMOVAL RATE DOWNWIND TO DISTANCE OF ABOUT 100 KM FROM RUHR AREA ESTIMATED, BASED ON MONITORING & SIMULATION. DEPOSITION VELOCITY OF .8 CM/S ASSUMED (DRY DEPOSITION). YEARLY AVERAGE LOSS RATE OF 4%/H RESULTS WITH MIXING LAYER OF 1000 M. IF CLOUDS & PRECIPITAT. ALLOWED FOR, AVERAGE LOSS RATE FOR WHOLE YEAR ESTIMATED TO 1.7%/H. 12%/H DETERMINED AS TOTAL AVERAGE REMOVAL RATE (LOSS + TRANSFORMATION RATE).

ENTRY NO. 770009
NEW

AVAILABLE FROM

INSTITUTION
WARREN SPRING LABORATORY DEPARTMENT OF INDUSTRY
GUNNELS WOOD ROAD. STEVENAGE, HERTFORDSHIRE SG1 2BX GREAT BRITAIN

TITLE OF PAPER
METEOROLOGICAL CONTROLS UPON GROUND LEVEL CONCENTRATIONS OF SMOKE AND SULPHUR DIOXIDE IN TWO URBAN AREAS OF THE UK

LANGUAGE ENGLISH

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NUMBER OF AUTHORS 2 T. CHANDLER D. ELSOM

DESCRIPTORS

1066 STATISTICAL
2011 SULFUR DIOXIDE
2062 PARTICLES
3026 URBAN
4073 FUNDAMENTAL (RESEARCH, DEVELOPMENT)
6211 SEDIMENTATION / FALL OUT
7005 SENSITIVITY ANALYSIS
9105 SHORT TERM
10022 CALIBRATION
11002 QUALIFICATIONS

REMARKS/ABSTRACT
GREATER MANCHESTER & NOTTINGHAM AREAS STUDIED USING DATA OF NATIONAL SURVEY OF AIR POLLUTION. MOST IMPORTANT METEOR. FACTORS IDENTIFIED & REL. WEIGHT DETERMINED BY MULTIPLE REGRESSION ANALYSIS. WIND SPEED, DEGREE-DAY TEMPERATURE & STABILITY MOST IMPORTANT. PERSISTENCE (PREVIOUS DAY'S CONCENTR.) IMPORTANT. REGRESSION COEFFS. FOR EACH OF 3 YEARS & 2 AREAS STUDIED SIMILAR IN VALUE. POLLUTION EPISODE STUDIED.

ENTRY NO. 770610
REVISED

AVAILABLE FROM
PROC.8TH INT.TECHN.MEET. AIR POLL.MOD.1977 LOUVAIN-LA-NEUVE, B

INSTITUTION
DANISH AIR QUALITY LAB., RISO NAT.LAB. DK-4000 ROSKILDE, DENMARK
DANISH METEOROL.INSTITUTE LYNGBYVEJ 100 DK-2100 COPENHAGEN,DENMARK

TITLE OF PAPER
PSEUDOSPECTRAL DISPERSION MODELING

LANGUAGE ENGLISH

REPORT NO. NO. OF PAGES 23 DATE OF PUBLICATION 77-09-20

NUMBER OF AUTHORS 2 L. PRAHM R. BERKOWICZ

DESCRIPTORS

1031 GRID
2011 SULFUR DIOXIDE
3042 LONG DISTANCE
4073 FUNDAMENTAL (RESEARCH, DEVELOPMENT)
5045 TOPOGRAPHY
5070 MIXING HEIGHT / INVERSION HEIGHT
6106 CHEMICAL TRANSFORMATIONS
6211 SEDIMENTATION / FALL OUT
9105 SHORT TERM
9210 CONCENTRATION FIELD

REMARKS/ABSTRACT
PRINCIPLES OF SPECTRAL & PSEUDOSPECTRAL NUMER.SIMULATION. COMPARISON WITH FINITE DIFFERENCE METHODS/ PSEUDOSP.MODEL (CHRISTENSEN & PRAHM, 1976): NUM.INTEGR.OF DISPERSION EQ.BY APPLYING FINITE FOURIER SERIES TO EVALUATE SPATIAL DERIVATIVES/ MORE ACCURATE THAN FINITE DIFFER. METHODS/ NOT LIMITED BY PERIODIC BOUNDARY CONDITIONS/2-D MODEL APPLIED TO REGIONAL CROSS-BOUNDARY TRANSMISSION OF S IN EUROPE (1977)

LISTING THESAURUS

NO	DESCRIPTOR	TOT	DEL	DOCUMENT-NO. 1	2	3	4	5	6	7	8	9	10
100	MODEL TYPE	107	4	700001	710002	720006	720007	730003	740006	740007	750004	750006	760003
				760004	680001	710003	710006	710007	720010	720012	730004	730005	740008
				740012	740015	740018	750010	750011	750012	750014	750019	750020	750021
				750024	760006	760007	760008	760009	760010	770001	700005	720005	730009
				740010	740014	740029	750040	740031	740042	1	690002	7000.6	720014
				730010	730011	740020	740021	740022	740026	750030	750031	750034	750038
				760013	760014	2	700008	710010	710011	730018	730019	730020	730022
				740017	740036	740039	740040	740041	750049	750050	750053	750054	750055
				750056	750058	750059	750060	750061	760017	760018	700009	730021	730023
				740037	740043	740045	750051	750062	770002	710013	760035	750069	750016
				750068	710015	720019							
101	GAUSSIAN MODEL	124	4	700002	720003	720007	720008	730002	740003	740005	750001	750003	760015
				760001	690001	710004	710005	720011	730005	730007	730008	740009	740011
				740013	750009	750013	750015	750017	750018	750022	750023	750026	720009
				720017	730014	730015	740027	740028	740030	750025	750039	750040	750041
				700007	730013	730017	740033	740034	740035	750043	750044	750045	750047
				750048	760015	690002	710008	710009	720013	720015	720016	730011	730012
				740023	740025	750027	750028	750029	750033	750034	750036	750037	750038
				760011	760012	750032	750057	760016	10001	700004	740044	740046	750063
				750064	760019	760020	720018	740038	740047	740048	750066	760031	770005
				770006	770007	730001	740002	740016	740024	740032	750005	750046	750065
				760021	760022	760023	760024	760025	760026	760027	760028	760029	760032
				760033	760034	770008	730024	760036	750070	710013	710014	730025	750071
				760039	750072								
102	BOX	5	0	750067	770006	760026	760038	750072					
103	GRID	7	0	760026	710015	730026	760037	760039	770010	750072			
104	LAGRANGIAN	2	0	760026	760037								
105	ANALYTICAL	1	0	760026									
106	STATISTICAL	4	0	750065	760026	760030	770009						
110	OTHER	6	0	770004	760026	770003	760038	760039	750072				
200	COMPOUNDS	0	0										
201	SULFUR DIOXIDE	68	2	720006	730003	740005	750001	750003	750006	720011	720012	730006	740008
				740015	750012	750013	750017	750022	750024	760006	720009	730009	730014
				730015	750040	750042	750047	710008	730012	760011	760012	2	700008
				730018	730020	750053	750054	750055	750056	750060	10001	700004	740044
				740045	740046	750051	750063	760019	770002	760020	740038	740048	750067
				760031	770004	770007	700010	730001	740002	760027	760028	760029	760034
				750069	690003	730026	760038	770009	770010				
202	CARBON MONOXIDE	29	1	750004	710004	710005	730005	740012	740018	750021	760009	750025	740034
				700006	720013	720015	730011	740020	740026	730015	740017	740039	740041
				750061	740037	750062	710012	700010	690003	760037	760038		

LISTING THESAURUS

NO	DESCRIPTOR	TOT	DEL	DOCUMENT-NO. 1	2	3	4	5	6	7	8	9	10
203	NITROGEN OXIDES	17	1	720007	750021	740034	750062	710012	700010	750005	760030	690003	710015
				760037	760039								
204	ORGANIC GASES	6	0										
205	FLUOR COMPOUNDS	5	0	720008	740004	740034	750062	710015	720019				
206	PARTICLES	16	0	750029	740040	750064	740038	700010					
207	OXIDANTS	9	0	710007	750022	750023	750024	730014	740031	740041	750050	750052	750055
				760060	700004	760031	700010	760038	770009				
208	WATER VAPOUR	2	1	740034	750034	750038	710011	700009	710012	690003	710015	760037	
209	RADIOACTIVE COMPOUNDS	12	0	750016									
210	INERT GASES	8	0	700003	720003	750007	750033	760014	740036	730021	700019	740032	760021
				760022	760023								
211	HEAVY GASES	0	0	750040	750048	750029	760014	750049	760021	760022	760039		
300	SCALE	0	0										
301	LOCAL	99	6	700001	700002	700003	720001	720003	720006	720009	730003	740003	740004
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				750031	750033	750036	760012	710011	730022	740039	740040	740041	750042
				750052	750053	750054	750055	750057	750061	760017	760018	10001	700004
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				760021	760022	760023	760024	760025	760028	760029	760035	760036	750016
302	URBAN	73	1	750070	760030	710014							
				710002	720004	730002	740005	750003	760002	760003	760004	760005	760001
				680001	710003	710004	710005	710007	720010	720011	720012	730008	740013
				750013	750017	750020	750021	760009	770001	700005	720005	740042	750043
				750045	760015	690002	700006	710008	720013	720015	730011	740020	740022
				750030	750031	750034	750038	2	700008	710010	730019	750055	740044
				740046	750051	750063	750064	760019	760020	740048	760031	770007	740024
				750005	760027	760032	760033	770008	750068	710013	710015	750071	760037
303	REGIONAL	58	4	760038	770009								
				710001	720002	720004	740005	740006	750001	750002	750006	730005	750022
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				750042	750047	760015	1	740020	740021	750031	750037	760011	760014
				730018	730020	740017	750049	750050	750056	750058	750060	700009	730021
				770002	740038	750067	770004	740016	750065	760034	770003	730024	750069
304	LONG DISTANCE	9	0	750016	690003	730025	760039						
				750011	750012	760010	750042	720014	750031	760013	730026	770010	

NO	DESCRIPTOR	TOT	DEL	DOCUMENT-NO.
400	APPLICATION	4	0	740027 700007 750036 750072
401	LICENSING PROCEDURE	30	0	720008 750002 760005 740001 710007 740015 750006 750024 750014 750025 750045 750017 730018 740039 750050 750052 750055 750056 700004 740044 740045 740046 750063 750064 760019 760020 770005 760032 750069 750073
402	STACK HEIGHT DETERMINATION	10	0	680001 740011 750015 720009 750044 720016 730012 750057 10001 740044
403	CAUSE ANALYSIS	0	0	
404	SCHEDULING OF MEASUREMENTS	4	0	720004 750023 740035 750060 750065 760027 760034 690003
405	IN ADDITION TO MEASUREMENTS	9	0	760002 760003 750021 740010
406	EPIDEMIOLOGICS	0	0	
407	FUNDAMENTAL (RESEARCH, DEVELOPMENT)	182	7	750003 760002 760003 710007 740009 750018 740038 760031 720019
				700001 700003 710001 710002 720001 720002 720003 720006 720007 730002 730003 740003 740004 740005 740006 740007 750001 750002 750004 750006 760004 760005 760001 680001 690001 710004 710005 720010 720011 720012 730004 730005 730006 730007 730008 740008 740009 740013 750009 750010 750011 750012 750013 750017 750018 750020 750026 760006 760007 760008 760009 770001 720005 720017 730015 740028 740029 740030 750039 750040 750041 730013 730017 740031 740033 740034 740035 750042 750043 750047 750048 760015 1 690002 700006 710008 710009 720013 720014 720015 730011 740020 740021 740023 740025 750027 750028 750029 750031 760013 760014 700008 710010 710011 730016 730019 730020 730022 740017 740040 750032 750049 750053 750054 750059 750060 760016 760017 760018 700009 730021 730023 740027 740043 750051 770002 710012 740048 750066 750067 770004 770006 770007 730001 740002 740016 740024 740032 750005 760021 760022 760023 760024 760025 760028 760029 760035 770003 770008 730024 760036 750068 750070 760030 690003 710013 710014 730025 730026 750071 760037 760038 760039 770009 770010
408	URBAN AND REGIONAL PLANNING	26	1	710006 740012 750015 750022 750041 740036 740042 750045 750048 740020 740026 750030 750033 750034 750038 730020 740017 750062 720018 740038 740032 750065 730024 710015 750073
409	SUPPLEMENTARY CONTROL	1	0	760027
500	PARAMETERS, MODEL CHARACTERISTICS	0	0	
501	DISPERSION PARAMETERS	32	1	740005 750008 740009 750009 750018 720017 740029 750025 760015 1 690002 740021 760014 750032 760016 760017 750066 740024 760021 760022 760023 760024 760025 760027 760029 760032 760033 760036 710015 720019 760037
502	TURBULENCE CLASSES	35	0	700003 720001 750008 750009 750018 720005 720017 740027 740028 750040 750041 730013 740033 760015 690002 700006 720013 730012 740025 750029 700008 710011 740019 750032 750052 750053 730023 720018 740047 750066 760021 760022 760023 760032 760036

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NO	DESCRIPTOR	TOT	DEL	DOCUMENT-NO.
503	PLUME RISE	27	2	740005 740007 690001 730004 740011 750009 720005 740027 740030 750044 760015 690002 720016 750035 750036 730016 750057 740038 740047 750046 740024 760028 760029 760036 750016
504	TOPOGRAPHY	33	0	750006 740001 760001 690001 710004 710005 710007 730007 740011 740015 750017 720005 750041 750044 760015 720013 720015 760014 750049 750050 10001 740043 740045 740046 740032 760027 760028 760029 760036 750070 750071 760039 770010
505	ROUGHNESS OF GROUND	11	0	710004 710005 720005 750040 760015 750029 750050 760021 760022 760023 720019
506	LOW WIND SPEED	8	0	690001 720012 750013 750017 760014 750067 770006 710013
507	MIXING HEIGHT / INVERSION HEIGHT	32	1	760001 690001 710003 740008 740015 750013 720005 720017 700007 730017 740035 760015 690002 700006 700008 740019 750045 760017 730023 750066 750067 770004 740024 760025 760027 760028 760029 760036 690003 760037 770010
510	(TO BE DEFINED)	0	0	
600	TRANSFORMATION AND REMOVAL PROCESSES	0	0	
610	CHEMICAL TRANSFORMATIONS	19	1	730003 720005 750042 750034 750038 750049 730023 710012 750067 770004 740024 760036 690003 710015 720019 760037 770010 750072
620	PHYSICAL TRANSFORMATIONS	3	0	760036 760037 750072
621	SEDIMENTATION / FALL OUT	12	1	700003 740003 750012 750026 720005 740031 760014 770004 740024 730025 770009 770010
622	WASH OUT	14	0	700003 720006 730003 740004 740007 730006 720005 730009 740014 740021 750031 760014 740036 770004
623	ADSORPTION	2	0	700003 770004
624	RADIOACTIVE DECAY	1	0	720003
630	PHASE TRANSITIONS	0	0	
700	SENSITIVITY ANALYSIS	1	0	770009
710	OCCASIONAL VARIATION OF PARAMETERS	17	0	750003 730008 740009 740013 750018 730014 740030 740020 740025 730020 740040 730023 750051 750064 740032 760024 760032
720	SYSTEMATICAL VARIATION OF PARAMETERS	12	0	740004 740007 760005 750019 740010 740033 760015 710008 730012 760017 760036 760037
800	MODEL INPUT	0	0	
810	SOURCE DIMENSION	1	0	760036

NO	DESCRIPTOR	TOT	DEL	DOCUMENT-NO. 1	2	3	4	5	6	7	8	9	10
P11	POINT SOURCE	27	5	700001	700002	710001	720006	720008	730002	730003	740003	740004	740007
				750002	760005	690001	710007	730004	740008	740009	740011	750009	750010
				750018	750026	720009	730014	740027	740028	740030	750025	750041	700007
				730013	730017	740033	740034	740035	750044	750047	1	720016	730012
				740021	740025	750027	750028	750029	750033	750035	750036	760011	750053
				750054	750057	750059	10001	740044	740048	770005	770006	730001	740002
				740016	740024	740032	750046	750065	760021	760022	760023	760028	760029
				760032	760033	760034	770008	750068	750070	760030	730025		
P12	LINE SOURCE	26	1	710001	720001	720002	720007	750002	750004	760005	730004	730005	750010
				740029	700007	730017	740033	740035	750048	710011	740041	750061	760017
				760018	750066	770005	760035	730025					
P13	AREA SOURCE	35	4	710001	720008	730002	760005	710007	720011	750026	750041	700007	730017
				740021	740025	750048	760011	700008	740041	750056	750066	770005	770006
				740016	740024	750005	750046	760032	760033	760034	770008	750068	710014
				730025									
P14	VOLUME SOURCE	1	0	700006									
P20	SOURCE TYPE	0	0										
P21	MOBILE SOURCE	10	0										
P22	STATIONARY SOURCE	55	0	730004	750010	760009	750039	740033	740034	750031	750034	750038	730029
				700001	700002	720001	720002	720006	720008	740002	740004	740006	750006
				690001	720011	740009	740011	750009	750016	720005	730014	740027	740028
				740030	750025	750041	730013	740034	750044	750047	760015	720016	730012
				740025	750027	750028	750029	750031	750033	750035	750036	750053	750054
				750057	10001	740044	740038	740047	740032	760021	760022	760023	760027
				760028	760029	770008	750070	760030					
P30	SOURCE TIME DEPENDENCE	0	0										
P31	DISCONTINUOUS SOURCE	17	0	700002	700003	710001	720008	750003	690001	730004	740009	750010	750018
P32	CONTINUOUS SOURCE	48	2	740029	740033	760015	1	740021	760014	760016			
P40	METEOROLOGICAL STATISTICS	P	C	700001	700002	700003	710001	720006	720008	740002	750003	760005	740011
				750009	720009	740027	740028	740030	700007	730013	750044	750048	760015
				710009	720016	730012	740025	750027	750028	750029	750035	750036	760014
				750057	740044	740038	750067	730001	740002	740032	760021	760022	760023
				760028	760029	760032	750070	760030	710014				
P41	1-DIMENSIONAL METEOROLOGICAL STATISTICS	1	0	750003	750006	730004	750010	720005	750047	730020	740037		
P42	2-DIMENSIONAL METEOROLOGICAL STATISTICS	2	0	760038									
P43	3-DIMENSIONAL METEOROLOGICAL STATISTICS	24	0	750001	750057								
				750001	690001	740008	750009	750015	750017	740028	730013	730017	740025
				760015	700006	710009	720016	740023	750027	750028	700004	720018	770005
				770007	740032	760036	750070						

LISTING THESAURUS

NO	DESCRIPTOR	TOT	DEL	DOCUMENT-NO. 1 2 3 4 5 6 7 8 9 10
850	WIND VARIANCE IN SPACE	18	0	750006 740001 720012 730007 750011 750012 750020 1 760014 750049 750052 750058 760017 730023 740043 750071 760037 760039
851	WIND VARIANCE WITH HEIGHT	7	0	710004 720005 740029 740021 760013 760016 770021
852	WIND VARIANCE WITH DISTANCE	0	0	
900	MODEL OUTPUT	1	0	750011
910	SHORT TERM	42	2	700003 720003 750003 680001 690001 710004 740008 740009 750012 750018 750021 760008 760010 770001 730014 740027 750035 740007 750048 700006 710008 750029 750033 700008 710011 740039 750053 750061 760018 770002 740048 750067 770006 740016 740024 760027 760028 760029 770008 760030 710013 710015 730026 760039 770009 770010
911	MEAN VALUES	14	2	750004 720011 740015 750012 760007 740041 700004 740038 740016 750005 710013 760038
912	MAXIMUM VALUES	10	1	750006 740012 760007 750027 750028 740041 740037 740039 760035
913	PEAL TIME	0	0	
920	LONG TERM	37	1	700003 730002 740005 750003 750006 760003 760001 730008 740013 760006 760007 730014 740010 750039 740033 690002 710008 720016 750031 750033 750036 750057 740047 740048 770006 740016 740024 740032 750065 750046 760027 760029 760032 760033 760034 770008
921	CONCENTRATION FIELD	4	0	750009 760033 760034 770010
922	FREQUENCY DISTRIBUTIONS	45	5	720008 750002 710004 710005 720011 740008 750005 760006 740010 740028 730013 740034 760015 700006 750027 750028 750032 760011 760012 750053 750054 700004 740044 760019 760020 740048 750066 770005 770006 770007 730001 740002 740016 740024 750005 760032 770008 760036 750070 760078
923	CHARACTERISTIC VALUES	41	3	700001 720008 740005 750001 680001 710007 740015 750015 750017 750022 750023 750024 760009 720009 730015 740028 750040 750041 740034 750045 750047 760015 740025 750037 730020 740041 750055 10001 700004 740046 750062 750063 750064 760019 760020 770007 740016 750005
1000	FIELD EXPERIMENTS	0	0	
1001	VALIDATION	78	5	700002 710002 720006 720007 730003 750001 750003 750006 760001 710003 710005 720011 720012 730005 740017 740018 750012 750013 750017 750019 750022 750023 760009 730009 750040 750047 1 700006 710008 720013 740021 740026 750029 750035 750037 760011 2 730016 730019 730022 740017 740041 750049 750053 750054 700009 730021 730023 740037 740044 740045 750051 750063 760019 770002 710012 760020 750067 760031 730001 740002 740016 750005 760028 760029 760032 760034 730024 710015 730026 760037 760038 760039
1002	CALIBRATION	12	1	740007 750001 710007 730005 750022 740020 750025 750037 700009 730024 770009

NO	DESCRIPTOR	TOT	DEL	DOCUMENT-NO. 1	2	3	4	5	6	7	8	9	10
1003	PARAMETER DETERMINATION	13	0	740004	710005	740009	740017	750018	750027	750028	740017	760021	760022
				760023	760032	710015							
1004	OTHERS	17	1	720006	730003	740007	760003	730005	750012	720013	750035	750050	750052
				750053	750060	740037	740038	700010	750016				
1100	QUALIFICATIONS	3	0										
1110	ADVANTAGES	29	1	760037	770009	750072							
				710002	740004	740005	740006	740007	750001	750004	760002	760005	760001
				680001	740017	760009	720017	740014	740042	1	730011	750038	740017
1120	LIMITS OF APPLICABILITY	24	2	750066	770005	740032	760025	760035	760030	710013	710014		
				720003	740005	740007	750001	740011	750017	740042	750048	730011	740024
				75003A	750066	730001	740002	740024	760025	760032	770003	770009	710013
1200	DOCUMENTATION	4	0	710014	760038								
1201	PROGRAM DESCRIPTION	27	3	740027	720016	750036	750057						
				720003	730002	750001	750004	730004	750010	750014	750020	720005	740010
				750045	710008	730010	740017	750057	750059	770005	770006	740016	750046
1202	PROGRAM LISTING	14	1	760033	770008	750068	720019						
				730002	750001	730004	750010	720005	740042	750043	750044	750046	760033
				77000A	750068	730025							

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AUTHOR	TOT	DEL	DOCUMENT-NO. 1	2	3	4	5	6	7	8	9	10	11	12	13
AHRENS	1	0	740001												
ARONDS	2	0	730001	740002											
AT-ATER	1	0	710010												
BADGLEY	1	0	730011												
BEATON	2	0	720001	720002											
BENARIE	1	0	760038												
BERGER	1	0	700001												
BERKOWICZ	1	0	770010												
BJORKLUND	4	1	720005	730004	750010										
BOWERS	2	0	760027	760028											
BOWNE	1	0	710001												
BRADWAY	1	0	740037												
BRAIG	5	0	740005	750001	760001	750044	750045								
BRENK	1	0	740072												
BRESSER	5	0	720003	720008	760015	760036	750070								
BRIGGS	3	0	720004	750002	750004										
BRYAN	1	0	700009												
BULTYNCK	1	0	700003												
BURRISS	1	0	720004												
BUSSE	1	0	730002												
CANTONI	1	0	750003												
CAVALLARO	3	0	750003	760002	760003										
CHANDLER	1	0	770009												
CHRIST	1	0	760001												

AUTHOR	TOT	DEL	DOCUMENT-NO. 1	2	3	4	5	6	7	8	9	10	11	12	13
CHRISTENSEN	1	0	760004												
CLAYSON	4	0	740006	750002	750004	760005									
COHEN	1	0	710006												
CORNETT	1	0	730021												
CRAMER	5	0	750006	720005	760027	760028	760029								
CROKE	5	3	710002	700008											
DABBERDT	2	0	710004	720013											
DABBERT	1	0	710005												
DANA	4	0	720006	730003	730009	740014									
DARLING	1	0	720007												
DE BAERE	5	0	760011	760012	750064	760019	760020								
DE MAERE	1	0	750064												
DEIMEL	1	0	700010												
DICKERSON	1	0	750007												
DOCKERY	1	0	740007												
DOVLAND	1	0	750008												
DREYHAUPT	3	0	720008	730009	750073										
DUMBAULD	4	2	730004	750010											
EGAN	3	0	730005	740010	750071										
ELIASSEN	3	0	730006	750011	750012										
ELSOM	1	0	770009												
ENGELDAL	2	0	760033	760034											
EPSTEIN	1	0	730005												
ERMINI CANTONI	1	0	750013												
ESCHBACH	1	0	720002												
ESCHENROEDER	3	0	710015	720019	750072										

AUTHOR	TOT	DEL	DOCUMENT-NO. 1	2	3	4	5	6	7	8	9	10	11	12	13
ET AL	1	0	760031												
ET ALII	1	0	740034												
FAUTH	1	0	740017												
FENSKE	1	0	750014												
FETT	1	0	740008												
FINZI	5	0	760006	760007	760008	770001	770002								
FORTAK	6	0	680001	690001	720010	750015	750016	750017							
FROEMMING	2	0	740009	750018											
FRONZA	4	0	760004	760007	760008	770001									
GADDO	1	0	760009												
GAERTNER	2	0	740007	740010											
GEARY	1	0	750006												
GIEBEL	4	0	740047	750067	770004	780030									
GOTAAS	1	0	740011												
GOUMANS	1	0	720011												
GRANT	1	0	750049												
GRIMM	1	0	740023												
GRONSKEI	5	0	710003	720012	750019	750020	750021								
GROUP OF SCK/CEN	5	0	10001	740044	740045	740046	750063								
GUALDI	3	0	760002	760003	750013										
GUDENAS	1	0	710013												
GULDBERG	4	0	740012	750022	740039	750060									
GUTHOF	1	0	700010												
GUTSCHE	5	0	730007	730008	740013	750017	690002								
HALES	4	0	720006	730003	730009	740014									
HALPERN	1	0	710014												
HAMBURG	4	0	740015	750023	750024	700004									

AUTHOR	TOT	DEL	DOCUMENT-NO. 1	2	3	4	5	6	7	8	9	10	11	12	13
HANNA	1	0	700005												
HECHT	1	0	730022												
HEGER	1	0	750070												
HERRMANN	1	0	760010												
HOESCHELE	1	0	750025												
HORST	1	0	750026												
HUEBSCHMANN	1	0	760021												
HUISMAN	1	0	740016												
INGRAM	1	0	740017												
JACOBS	1	0	730019												
JOHNSON	3	1	710004	710005											
KEDDIE	1	0	760031												
KELLNER	1	0	740078												
KEMEPER	1	0	750022												
KENNEDY	1	0	710006												
KIRSCH	1	0	740018												
KLEINE COMMISSIE	1	0	760072												
KLUG	1	0	760010												
KNECHTEL	1	0	710007												
KNOEPCKE	1	0	750073												
KNOX	1	0	740021												
KOCH	2	0	710008	750069											
KOKIN	2	0	730010	730023											
KOLB	3	0	750027	750028	740019										
KRETZSCHMAR	4	0	760011	760012	760019	760020									
KROCH	1	0	740020												
KROPP	3	0	750009	760015	760036										

AUTHOR	TOT	DEL	DOCUMENT-NO.												
			1	2	3	4	5	6	7	8	9	10	11	12	13
KUELSKE	3	0	740047	750066	770005										
KURZ	1	0	760013												
LAMB	1	0	730011												
LANGE	3	0	1	740021	760014										
LASEUR	1	0	750029												
LEHMANN	2	0	750030	750031											
LENSCHOW	2	0	730008	740013											
LESUIS	1	0	740048												
LIECHTI	2	0	770006	770007											
LIU	1	0	760037												
LUDWIG	5	0	700006	720013	720015	730012	740022								
MACBETH	1	0	690003												
MACCRACKEN	2	0	720014	750049											
MALET	1	0	700003												
MANCUSO	1	0	720015												
MANIER	4	0	710009	720016	740023	750057									
MARTIN	1	0	750050												
MARTINEZ	2	0	710015	720019											
MARZIANO	2	0	2	750051											
MASON	1	0	740018												
MATH. MODELLING	5	0	10001	740044	740045	740046	750063								
MCCORMICK	1	0	670002												
MCLAREN	1	0	750052												
MELLI	2	0	750040	760016											
MICHELMANN	3	0	740005	750001	720009										
MILLS	4	0	750034	750053	750054	730025									

AUTHOR	TOT	DEL	DOCUMENT-NO. 1	2	3	4	5	6	7	8	9	10	11	12	13
MOLENKAMP	1	0	740036												
MOON	1	0	700006												
MORGENSTERN	3	0	730018	750055	750056										
MOSHER	1	0	690003												
MUELLER	1	0	750065												
MULLER	1	0	740048												
NESTER	1	0	760022												
NIEUWENDIJK	2	0	760033	770008											
NIEUWSTADT	8	1	750046	740024	750033	750032	740025	760034	770008						
NN	6	1	750061	740003	740004	720018	740042								
NORDLUND	1	0	730026												
ORPHAN	1	0	750007												
PANDOLFO	2	0	710010	730019											
PASQUILL	1	0	760025												
PATEL	1	0	730020												
PATTERSON	4	0	740026	750034	750038	740037									
PEARSON	1	0	750014												
PELTON	1	0	740041												
POODT	1	0	750029												
PORTER	3	0	750035	750036	750037										
PRAHM	2	0	760004	770010											
PROHASKA	2	0	740028	730013											
RAMPE	1	0	740043												
RANDERSON	1	0	730021												
RANZIERI	2	0	720001	720002											
RECORD	3	0	740026	750038	750053										
REEVES	1	0	730025												

AUTHOR	TOT	DEL	DOCUMENT-NO. 1	2	3	4	5	6	7	8	9	10	11	12	13
REUTER	5	0	720017	740027	740028	730013	740019								
ROBERTS	4	2	710002	700008											
ROBINSON	1	0	710001												
ROSENBLUM	1	0	750071												
ROTE	4	0	750039	730022	760026	710013									
RUANE	1	0	730014												
RUDOLPH	1	0	740078												
RUNCA	8	1	730015	740029	750040	750047	760017	760018	760035						
SALTBONES	2	0	750011	750012											
SAMBOL	1	0	740040												
SARDEI	3	1	740029	760035											
SHERMAN	1	0	750058												
SHIEH	3	0	750059	750068	710014										
SHIR	2	0	750059	750068											
SIEGEL	3	0	740079	750060	750062										
SIVERTSEN	3	0	740030	750041	760039										
SLINN	1	0	740031												
SMITH	3	0	750042	710011	740040										
STERN	2	0	750043	750054											
STROTT	2	0	750044	750045											
SUTERA	2	0	2	750051											
THAYER	2	0	710008	740041											
THOMAS	2	0	760021	760022											
THOMPSON	1	0	750048												
TIGGELAAR	1	0	740073												
TRAMPF	1	0	730016												

AUTHOR	TOT	DEL	DOCUMENT-NO. 1	2	3	4	5	6	7	8	9	10	11	12	13
TURNER	1	0	700007												
VAN BUIJTENEN	1	0	700002												
VAN COOTEN	1	0	750005												
VAN DER WILT	2	0	730017 740035												
VEIGELE	2	0	760005 740034												
VERHEUL	1	0	740016												
VERMAAS	1	0	750046												
VOGT	2	0	740032 760023												
VON FALSER	1	0	720009												
WANGEN	1	0	750039												
WAYNE	4	0	730010 700009 730023 710012												
WEBER	1	0	760024												
WEISBURD	1	0	710012												
WHITNEY	1	0	760037												
WILLIS	1	0	730024												
WILTSEE	1	0	750062												
WIPPERMANN	1	0	770003												
WOOD	1	0	750037												
ZANNETTI	3	0	730015 750047 770002												
ZIMMERMAN	2	0	730002 750048												

YEAR	TOT	DEL	DOCUMENT-NO. 1	2	3	4	5	6	7	8	9	10	11	12	13
XXXX	4	1	1	2	10001										
1937	1	0	730005												
1947	1	1													
1968	1	0	690001												
1969	3	0	690001	690002	690003										
1970	12	2	700005	700007	700008	700001	700002	700003	700009	700010	700004	700006			
1971	19	4	710003	710009	710010	710011	710001	710002	710006	710012	710004	710005	710007	710008	710013
			710014	710015											
1972	26	7	720010	720015	720016	720001	720002	720003	720004	720005	720006	720007	720008	720018	720009
			720011	720012	720013	720014	720017	720019							
1973	35	10	730007	730008	730012	730016	730018	730019	730020	730022	730001	730002	730003	730021	730023
			730024	730015	730004	730006	730009	730010	730011	730013	730014	730017	730025	730026	
1974	69	21	740008	740013	740014	740033	740035	740022	740024	740025	740036	740039	740040	740041	740001
			740002	740003	740004	740005	740006	740007	740037	740043	740044	740046	740038	740047	740048
			740029	740032	740009	740010	740011	740012	740015	740016	740017	740018	740019	740020	740021
			740023	740026	740027	740028	740030	740031	740034	740042	740045				
1975	99	29	750009	750010	750013	750015	750016	750017	750018	750043	750046	750029	750033	750032	750050
			750052	750053	750054	750055	750056	750057	750058	750059	750060	750061	750001	750002	750003
			750004	750005	750006	750007	750008	750051	750062	750063	750064	750066	750067	750047	750065
			750011	750012	750014	750019	750020	750021	750022	750023	750024	750025	750026	750027	750028
			750030	750031	750034	750035	750036	750037	750038	750039	750041	750042	750044	750045	750048
			750049	750068	750070	750071	750073								
1976	52	12	760006	760007	760013	760001	760002	760003	760004	760005	760031	750040	760016	760017	760018
			760021	760022	760023	760024	760025	760026	760027	760028	760029	760032	760033	760034	760035
			760008	760009	760010	760011	760012	760014	760015	760019	760020	760036	760030	760037	760038
			760039												
1977	11	1	770002	770004	770005	770006	770007	770001	770003	770008	770009	770010			

ANNEX I

Names and Addresses of Panel Members (as of Fall 1978)

R. D. Bauman	Environmental Protection Agency (OAQPS - SASD - ESB - MD - 12) Research Triangle Park USA - 27711 North Carolina
A. Berger	Institut de l'Astronomie et de Géophysique Université Catholique de Louvain 2, Chemin du Cyclotron B - 1348 Louvain la Neuve
P. J. Choquette	Air Pollution Control Directorate Environment Canada Cdn - Ottawa, Ont. K I A IC8
R. Dams	University of Gent Institute Nuclear Sciences Proeftuinstraat 86 B - Gent 9000
J. Frank	Rheinisch-Westfälischer TÜV Steubenstraße 53 D - 4300 Essen
F. Gerold	TÜV Rheinland Postfach 10 17 50 D - 5000 Köln 1
B. Gutsche	Institut für Geophys. Wissenschaften Freie Universität Thielallee 50 D - 1000 Berlin 33
K. E. Joerss	Umweltbundesamt Bismarckplatz 1 D - 1000 Berlin 33
D. Jost	Umweltbundesamt Bismarckplatz 1 D - 1000 Berlin 33
W. Klug	TH Darmstadt Sektion Meteorologie Hochschulstraße 1 D - 6100 Darmstadt

L. Kropp	TÜV Rheinland Postfach 10 17 50 D - 5000 Köln 1
M. Kwizak	Air Quality and Inter-Environmental Research Branch 4905 Dufferin St. Atmospheric Environment Service Cdn - Downsview (Toronto) Ont. M 3 H 5 T 4
E. Lahmann	Bundesgesundheitsamt Corrensplatz 1 D - 1000 Berlin 33
L. E. Niemeyer	Environmental Protection Agency M u. AD, ESRL (MD-80) Research Triangle Park USA - 27711 North Carolina
H. Meinl	Dornier System Postfach D - 7990 Friedrichshafen
C. Morawa	Umweltbundesamt Bismarckplatz 1 D - 1000 Berlin 33
F. Nieuwstadt	Koninklijk Nederlands Meteorologisch Instituut Utrechtseweg 297 NL - De Bilt 2664
J. C. Oppeneau	Ministere de la Culture et de l'Environnement Service d'Affaires Scientifiques 14 Bvd. du Général Leclerc F - 92521 Neuilly/Seine
B. Reilhac	Ministere de la Culture et de l'Environnement Secretariat d'Etat a l'Environnement 14 Bvd. du Général Leclerc F - 92521 Neuilly/Seine
L. Santomauro	Osservatoric Meteorologico Brera Via Brera 28 I - 20121 Milano
T. Schneider	RIJKS Institut voor de Volksgesondheit P. O. Box 1 NL - Bilthoven
B. Sivertsen	Norwegian Institute for Air Research P. O. Box 130 (NILU) N - 2001 Lilleström

O. Skogvold	Norwegian Institute for Air Research P. O. Box 130 (NILU) N - 2001 Lillestrøm
I. Tikvart	Environmental Protection Agency (OAQPS - MDAD + DM + 14) Research Triangle Park USA 27711 North Carolina
H. E. Turner	Air Quality and Inter-Environmental Research Branch 4905 Dufferin St. Atmospheric Environment Service Cdn - Downsview (Toronto) Ont. M 3 H 5 T 4
V. Vent-Schmidt	Deutscher Wetterdienst Frankfurter Str. 135 D - 6050 Offenbach
L. H. J. Wachters	BM - TNO P. O. Box 541 NL - Apeldoorn
E. Weber	Bundesministerium des Innern Rheindorfer Str. 198 D - 5300 Bonn 7
M. L. Williams	Warren Spring Laboratory P. O. Box 20 Gunnels Wood Road GB - Stevenage Hertfordshire SG 1 2 BX
C. de Wispelaere	Services du Premier Ministre - Programmation de la Politique Scientifique - 8, Rue de la Science B - 1040 Brussels

ANNEX II

NATO/CCMS Documents on the First Air Pollution Pilot Study (available at: NATO/Committee on the Challenges of Modern Society, NATO Headquarters, Brussels, Belgium)

AIR POLLUTION (No. 5)

Proceedings of the 2nd Meeting of the Expert Panel on Air Pollution Modeling, (26 - 27 July 1971, Paris, France) Out of stock

AIR POLLUTION (No. 6)

Guidelines to Assessment of Air Quality (Revised)

APPENDIX A	Assessment of Air Quality in Ankara (February 1973)
APPENDIX B	Assessment of Air Quality in St. Lohis (February 1973)
APPENDIX C	Assessment of Air Quality in Frankfurt (June 1974)
APPENDIX D	Assessment of Air Quality in Oslo (February 1973)
APPENDIX E	Assessment of Air Quality in South Holland Region (December 1973)

AIR POLLUTION (No. 7)

Quality Criteria for Sulphur Oxides (November 1971) Out of stock

AIR POLLUTION (No. 8)

Air Quality Criteria for Particulate Matter (November 1971) Out of stock

AIR POLLUTION (No. 10)

Air Quality Criteria for Carbon Monoxide (June 1972)

AIR POLLUTION (No. 12)

Control Techniques for Sulphur Oxide Air Pollutants (October 1975)

AIR POLLUTION (No. 13)

Control Techniques for Particulate Air Pollutants (October 1973)

AIR POLLUTION (No. 14)

Proceedings of the 3rd Meeting of the Expert Panel on Air Pollution Modeling
(2 - 3 October, 1972, Paris)

AIR POLLUTION (No. 15)

Air Quality Criteria for Nitrogen Oxides (June 1973)

AIR POLLUTION (No. 18)

Control Techniques for Carbon Monoxide Emissions from Stationary Sources (October 1973)

AIR POLLUTION (No. 19)

Control Techniques for Hydrocarbon and Organic Solvent Emissions from Stationary Sources (October 1973)

AIR POLLUTION (No. 20)

Control Techniques for Nitrogen Oxide Emissions from Stationary Sources (October 1973)

AIR POLLUTION (No. 29)

Air Quality Criteria for Photochemical Oxidants and Related Hydrocarbons (February 1974)

AIR POLLUTION (No. 30)

Proceedings of the 4th Meeting of the Expert Panel on Air Pollution Modeling, (28 - 30 May 1973, Oberursel, Germany)

AIR POLLUTION (No. 33)

Final Report (May 1974)

AIR POLLUTION (No. 35)

Proceedings of the 5th Meeting of the Expert Panel on Air Pollution Modeling (4 - 6 June 1974, Roskilde, Denmark)

AIR POLLUTION (No. 41)

First Follow-up Report (December 1975)

AIR POLLUTION (No. 50)

Second Follow-up Report (December 1976)

AIR POLLUTION (No. 67)

3rd Follow-up Report (November 1977)

Annex III

NATO/CCMS Documents on the Pilot Study on Air Pollution Assessment Methodology and Modeling
(available at: NATO/Committee on the Challenges of Modern Society, NATO Headquaters, Brussels, Belgium)

Air Pollution (No. 42)

Proceedings of the 6th International Technical Meeting on Air Pollution Modeling and its Application
(24 - 26 September 1976, Frankfurt/Main, Germany)

Air Pollution (No. 51)

Proceedings of the 7th International Technical Meeting on Air Pollution Modeling and its Application
(7 - 10 September 1976, Airlie House, USA)

Air Pollution (No. 70)

Bibliography on Grey Literature on Air Quality Modeling, Part I (Applied Models)

Air Pollution (No. 71)

Air Quality Management Systems

Air Pollution (No. 88)

Bibliography on Grey Literature on Air Quality Modeling, Part II (New Modeling Techniques)

Air Pollution (No. 89)

Glossary of Terms Generally Used in Air Pollution Assessment Methodology and Modeling

Air Pollution (No.)

Proceeding of the 8th International Technical Meeting on Air Pollution Modeling and its Application
(20 - 23 September 1977, Louvain-la-Neuve, Belgium)

Air Pollution (No.)

Air Pollution Emission Projecting

Air Pollution (No.)

Introduction to Air Quality Modeling